



### Why are Chinese and North American guests satisfied or dissatisfied with hotels? An application of big data analysis

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## Why are Chinese and North American guests satisfied or dissatisfied with hotels? An application of big data analysis

### Abstract

**Purpose**—The paper aims to identify the emergent themes of hotel guests' satisfaction, to compare the attributes distribution of the themes between Chinese and North American guests, and to compare the importance of the themes for different satisfaction levels between Chinese and North American guests from a cross-cultural perspective.

**Design/methodology/approach**—By adopting Python (a computer language), the word-frequency method was used to identify emergent themes of hotel guests' satisfaction. Topic modeling was adopted to compare the attributes distribution of each theme and the features of satisfaction between Chinese and North American guests.

**Findings**—First, three themes were identified including *Functionality, Staff and Price*. *Functionality* can be further categorized into five subthemes: room, travel, food, environment and hotel facility. Second, the attributes distribution of the themes between Chinese and North American guests was compared from a cross-cultural perspective. Chinese guests tend to mention both *lifestyle-* and *social norms-*related attributes and expect personalized service, while North American guests mainly prefer to describe *lifestyle-*related attributes and prefer standardized service. Third, the study compared the changing importance of the themes (*Functionality, Staff, and Price*) for different satisfaction levels between Chinese and North American guests. As the satisfaction level decreases, the importance of *Functionality* decreases, that of *Staff* increases, and that of *Price* remains stable for Chinese guests. In contrast, the importance of each theme has fluctuated mildly from the high to the low satisfaction level for North American guests.

**Practical implications**—Proposed managerial implications are to highlight *lifestyle-* and *social norms-*related attributes as well as personalized service for Chinese guests. But, *lifestyle-*related attributes and standardized service should be facilitated for North

American guests. Specific suggestions were made to help improve hotel performance such as the good performance of *functional*-related attributes, which could enhance satisfaction, and better staff performance, which would reduce dissatisfaction.

**Originality/value**—By mining big data, this study investigated hotel guests' satisfaction from a dynamic instead of a static perspective. This study provides some rare insights into differences in key attributes influencing satisfaction levels of Chinese versus North American guests staying in luxury hotels in China. This study also takes a novel approach to examine the dynamic of the importance of the various themes at different satisfaction levels, and contrast this dynamics between Chinese and North American guests. The findings offer valuable insight for market segmentation and management in the hospitality industry.

**Keywords**—Satisfaction; Cross-cultural perspective; Big data; Word frequency; Topic modeling

**Paper type**—Research paper

## 1. Introduction

Customer satisfaction has been the core concept in tourism studies for a relatively long time due to its role in the revisit intention, decision making, and the customer experience (Pizam *et al.*, 2016; Lee and Kim, 2018; Kandampully *et al.*, 2018; Lee *et al.*, 2019; Lin *et al.*, 2020). For instance, Chen *et al.* (2013) testified to the relationship among quality, satisfaction and loyalty and showed that satisfaction mediates the relationship between quality and loyalty. Jani and Han (2014) examined the relationships among personality, satisfaction, loyalty, ambience, and image and indicated that personality factors (extraversion, agreeableness, and neuroticism) significantly affect satisfaction while satisfaction significantly influences image and loyalty. Park *et al.* (2019) investigated the impact of a substantive and communicative servicescape on satisfaction and satisfaction's influence on behavioral intentions.

However, understanding customer satisfaction and dissatisfaction is challenging because of their intricate and complex natures (Sangwon *et al.*, 2018), especially in a cross-cultural context. The behavioral pattern of customers from different cultures has been considered distinctive in many ways (Radojevic *et al.*, 2017). Differentiating market segments has long been a challenging job. Recently, scholars proposed that the dramatic role of big data from websites should be highlighted due to its rich vein of information (Berezina *et al.*, 2016). For instance, travel websites provide both structured and unstructured data such as review scores, review contents, review time, stay time, travel types, the origin or age of travelers, etc. (Zhang *et al.*, 2016). The influential role of the digital world provides an unprecedented opportunity for both scholars and hoteliers to gain insights about customer satisfaction and dissatisfaction. Together with computerized methods, big data from social media could revolutionize tourism research.

The current study focuses on using the large amount of textual data available from travel websites to investigate the emergent themes of hotel satisfaction, compare the attributes distribution of the themes between Chinese and North American guests from a cross-cultural perspective, and compare the changing importance of the themes for different satisfaction levels between Chinese and North American guests. A large

scale of textual data from Ctrip.com and Tripadvisor.com (the two most influential travel websites in China) were collected to unearth the characteristics of hotel satisfaction. The studied five-star hotels, including 261 from Ctrip.com and 60 from Tripadvisor, are located in the country's six most popular tourist destinations of Shanghai, Beijing, Hangzhou, Chengdu, Guangzhou and Xi'an. In measuring themes of hotel satisfaction, this study compared the attributes distribution of the themes between Chinese and North American guests from a cross-cultural perspective and compared the changing importance of the themes for different satisfaction levels between Chinese and North American guests.

## 2. Literature review

### 2.1 Satisfaction studies in hospitality

The concept of customer satisfaction was defined several decades ago. Customer satisfaction can be conceptualized as the discrepancy between expectation and perceived performance (Oliver, 1980). Satisfaction is assured when perceived performance exceeds expectation, while, when expectations are not fulfilled, customers feel dissatisfied. There are mainly three research streams of guests' satisfaction study according to previous literatures. The first group of the study investigates the symmetric relationships between service quality (SQ) attributes and satisfaction. For example, "room-related attributes" such as cleanliness, comfort, decoration, amenities, and equipment support were considered essential to guests' satisfaction (Chen *et al.*, 2014; Tussyadiah and Iis, 2016; Zhang and Cole, 2016; Hu *et al.*, 2019; Padma and Ahn, 2020). "Travel-related attributes" including accessibility to attractions, airport shuttle bus service, universities and public transportation, and local businesses were main determinants for satisfaction (Yang *et al.*, 2018; Padma and Ahn; 2020). "Hotel-related attributes" such as parking were identified as a satisfaction factor (Yang *et al.*, 2018). "Staff-related attributes" were also proved to be significant in determining satisfaction (Chen *et al.*, 2014; Zhang and Cole, 2016). Moreover, hedonic attributes, enjoyment and value proved to be influential in enhancing guests' satisfaction (Tussyadiah and Iis, 2016; Lee and Kim, 2018).

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4 Sources of satisfaction with different types of guests (new, repeat, and frequent  
5 travelers) and different types of hotels (luxury versus budget hotels) were also  
6 explored to understand guests' satisfaction (Lai and Hitchcock, 2017).  
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10 In addition to the above regular attributes, personal characteristics, gender, hotel  
11 staff's weight, hotel star ratings, sales techniques and hotel program benefits, and  
12 features of textual reviews were considered as factors affecting guest's satisfaction  
13 (Gregory *et al.*, 2015; Radojevic *et al.*, 2015; Smith *et al.*, 2016; Radojevic *et al.*,  
14 2017; Zhao *et al.*, 2019). For instance, Radojevic *et al.* (2017) found that hotel guests'  
15 personal characteristics such as nationality were considered critical in evaluating  
16 satisfaction. Smith *et al.* (2016) found that hotel guests generated higher satisfaction  
17 when served by heavy women staff because heavy women were considered to be  
18 more friendly. Gregory *et al.* (2013) revealed that sales techniques and hotel programs  
19 affect satisfaction. Zhao *et al.* (2019) evaluated the relationships between features of a  
20 textual review (subjectivity, readability, length, diversity and sentiment polarity) and  
21 guests' satisfaction. The study indicated that a higher level of subjectivity and  
22 readability and a longer length of a textual review lead to lower overall customer  
23 satisfaction, and a higher level of diversity and sentiment polarity of a textual review  
24 leads to higher overall customer satisfaction. In addition, researchers examined  
25 guests' green experiences affecting satisfaction. Guests' overall satisfaction was  
26 significantly influenced by "guest training", "energy", "water", "purchasing" and  
27 "education and innovation" (Susskind, 2014). Finally, service recovery performance  
28 on customer satisfaction was investigated (Min *et al.*, 2015; Jin *et al.*, 2019). For  
29 instance, Jin *et al.* (2019) revealed that the most effective service recovery time was  
30 30 minutes, and, when service recovery times were shorter, the effects on guests'  
31 satisfaction were more positive.  
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52 The second group of the studies explores the asymmetric relationships between  
53 service quality (SQ) attributes and satisfaction. For example, Lee *et al.* (2017)  
54 discovered that guests' satisfaction was affected by factors such as image and  
55 attractions, local people, sense of achievement, programs, accessibility, hotel  
56 facilities, site environment, and specially arranged programs. The study also showed  
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4 that the attributes of each factor can be grouped into delighters, satisfiers, hybrids,  
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6 dissatisfiers, and frustrators, indicating their asymmetric influence on satisfaction. For  
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8 instance, delighters and satisfiers were mostly found in the attributes of image and  
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10 attractions, local people, and site environment; dissatisfiers and frustrators were  
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12 mainly found in the attributes of programs, accessibility, and hotel facilities; and the  
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14 attributes of sense of achievement were a mixture of delighters, satisfiers and hybrids.  
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16 Davras and Caber (2019) discovered that “Entertainment Services”, “Restaurant  
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18 Services”, “Cleaning of General Areas” and “Foreign Language Knowledge of Staff”  
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20 were the most critical factors affecting hotel guests’ satisfaction. The study also  
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22 grouped these factors into three types (satisfiers, dissatisfiers if absent, and hybrids)  
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24 and compared differences among three market segments (Turkish, German and  
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26 Russian). Ju *et al.* (2019) revealed that Airbnb guests’ satisfaction was influenced by  
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28 quality factors including facility service, host service, web efficiency, and web  
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30 responsiveness. Attributes of each factor have asymmetric links to guests’  
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32 satisfaction. For instance, “safe neighborhood”, “clean bathroom”, and “quiet  
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34 neighborhood” were considered satisfiers while “comfortable bed” and “visual  
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36 appeal” were found to be dissatisfiers in facility service quality. “Welcoming” and  
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38 “best interests at heart” were identified as satisfiers, “helpful host” and “home  
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40 feeling” were categorized as dissatisfiers, and “friendliness” was proved a frustrator in  
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42 host service quality. Attributes of web efficiency and web responsiveness quality, all  
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44 classified into either dissatisfiers or frustrators, have negative asymmetric effects on  
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46 guests’ satisfaction. Bi *et al.* (2020) also explored the asymmetric impacts of  
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48 attributes performance on hotel guests’ satisfaction. Their study revealed that the  
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50 asymmetric impacts of attributes performance on hotel guests’ satisfaction varied  
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52 across different types of hotels and different types of guests as well as among guests  
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54 from different countries and regions.

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56 The third group of the studies examines how satisfaction and other variables  
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58 affect behavioral intention. For instance, Jani and Han (2014) assessed the links  
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60 among personality, satisfaction, loyalty, ambience, and image in a hotel setting. The  
results indicated that personality factors (extraversion, agreeableness, and

neuroticism) significantly affect satisfaction, while satisfaction significantly influences image and loyalty. Hotel image was identified as a mediator between satisfaction and loyalty. Jo *et al.* (2014) found that, compared to functional value, emotional value exerts a greater influence on satisfaction and further affects behavioral intentions. Gao and Lai (2015) found that integrated satisfaction directly influences loyalty and should be considered a full mediator between F&B satisfaction and customer loyalty, a partial mediator between casino satisfaction and loyalty, and a partial mediator and moderator between shopping satisfaction and customer loyalty. Worsfold *et al.* (2016) showed that, compared to service satisfaction, physical satisfaction has significantly more influence on the intention to return. Park *et al.* (2019) found that both a substantive and communicative servicescape positively influence satisfaction and further affect behavioral intentions. Carneiro *et al.* (2019) revealed that the eventscape (design and entertainment) had the highest influence on emotions (pleasure and arousal), satisfaction, and loyalty. Their study further proved that only the emotional dimension of pleasure significantly impacted satisfaction and loyalty, and it was identified as a mediator between the eventscape and satisfaction.

Previous literature shows that guests' satisfaction has been profoundly investigated in the tourism and hospitality field, however, very few studies have focused on satisfaction from a cross-cultural perspective in the hospitality field. This study thus tries to unveil this phenomenon.

## 2.2 Theory background: Hofstede model

The Hofstede model has been widely applied in consumer behavior studies. It has been proved an effective model for differentiating the behavioral features of consumers from different cultures. The Hofstede model covers six dimensions including power distance, collectivism-individualism, masculinity-femininity, uncertainty avoidance, long-term orientation—short-term orientation, and indulgence-restraint (Hofstede, 1980, 2005). Power distance reflects the degree to which lower society members accept an unequal distribution of power; collectivism-individualism indicates the interrelationships and interdependency among society's members;



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4 masculinity-femininity refers to an individual's preference for achievement, heroism  
5 and materialism or for cooperation, modesty and sympathy; uncertainty avoidance  
6 reflects the degree of un-comfortability with uncertainty and ambiguity; long-term  
7 orientation—short-term orientation indicates the degree of highlighting the present or  
8 the future; and indulgence-restraint means following strict social norms or enjoying  
9 life and having fun (Hofstede, 1980, 1991, 2005, 2011).

15 The Chinese culture is characterized as one with a high power distance that is  
16 collectivistic and masculine with a relatively high uncertainty avoidance and that is  
17 long-term oriented and characterized by restraint, while the American culture is  
18 considered to be one with a low power distance that is individualistic and masculine  
19 with a relatively low uncertainty avoidance and that is short-term oriented and  
20 characterized by indulgence (Hofstede, 2009; Liu *et al.*, 2017; Jia, 2020). In a high  
21 power-distance culture, individuals tend to emphasize social norms such as traditional  
22 customs, rituals and habits, which are considered common beliefs in the society. In  
23 addition, because of the high power-distance, Chinese people are face-conscious in  
24 interpersonal relationships (Ho, 1980), meaning they avoid upsetting personal  
25 interactions (Au *et al.*, 2014). Just because a Chinese guest is not complaining does  
26 not mean that guest is satisfied (Au *et al.*, 2014). Meanwhile, in a lower power-  
27 distance culture, individuals are more open to diverse opinions and more likely to  
28 accept different views. Similarly, from a collectivism-individualism perspective,  
29 Chinese people are accustomed to following social conventions, while Americans are  
30 socially more independent. Compared to Americans, Chinese people are more  
31 collectivistic and are more inclined to expect friendlier, more considerate and more  
32 personalized service. In an uncertainty avoidance culture, people tend not to complain  
33 when they are dissatisfied with the service to avoid conflicts with hotel managers. For  
34 instance, compared to non-Chinese guests, Chinese guests complained less in terms of  
35 service quality, space, cleanliness, location, noise, food, facilities, price, amenities,  
36 and decorations (Au *et al.*, 2014). These findings reflect a distinction between  
37 Chinese and American guests.  
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### 2.3 Value of big data

Compared with traditional surveys such as questionnaires and personal interviews, the value of big data/online reviews from websites has been highlighted in recent years (Wu *et al.*, 2017; Mariani *et al.*, 2018; Zhao *et al.*, 2019; Moro *et al.*, 2019). Online reviewers are from different countries and regions and are classified into different travel groups on websites. The timespan of the online data could be more than ten years, enabling researchers to conduct longitudinal studies. Reviewers voluntarily contribute an extensive range of opinions, perceptions, and ideas about a certain product or destination, providing insights for scholars or hoteliers to see into the minds of customers and gain a more complete picture of customer behavior (Berezina *et al.*, 2016; Park, 2017). For instance, Liu *et al.* (2017) found that the importance of “rooms”, “location”, “cleanliness”, “service” and “value” differed among guests from countries where different languages are spoken by analyzing 412,784 user-generated reviews of 10,149 hotels from Tripadvisor.com. The findings also revealed Chinese guests’ unique preferences for room-related attributes. Talón-Ballester *et al.* (2018) examined client knowledge in hospitality management with big data. They showed that hotel guests traveling without children had the greatest consistency, British and German clients were very similar, and Spanish clients were distinct in terms of stay duration and age.

Empirical studies of customer satisfaction usually require a large set of data. For instance, product or service attributes have frequently been investigated and identified by previous researchers in different contexts (Tussyadiah and Iis, 2016; Zhao *et al.*, 2019). The determinants of customer satisfaction have been widely assessed in the context of different countries and regions, such as Hong Kong, China, Scotland, and Malaysia (Gundersen *et al.*, 1996; Choi and Chu, 2001; Getty and Gettly, 2003; Fuller and Matzler, 2008). The Kano model classifies the attributes into three groups. The first group comprises basic attributes, reflecting minimum service requirements (Matzler and Sauerwein, 2002). These attributes do not necessarily lead to customer satisfaction, but customers would feel dissatisfied if these attributes were absent. For example, the availability of a toothbrush, toothpaste, slippers, and towels in the

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4 restroom or the proper setting of beds including pillows, quilts and sheets on the bed  
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6 may not create satisfaction, but customers would be disappointed if these features  
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8 were absent. The second group is performance attributes, indicating satisfaction if  
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10 present and dissatisfaction if absent (Lai and Hitchcock, 2017). For example, staff's  
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12 good attitude leads to satisfaction, while a bad attitude causes dissatisfaction. The  
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14 third group is excitement attributes, which create higher satisfaction if present, but  
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16 which will not lead to dissatisfaction if absent (Matzler and Sauerwein, 2002; Zhang  
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18 and Cole, 2016). In the empirical studies, both identifying the attributes and  
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20 evaluating the satisfaction level of each attribute require a considerable amount of  
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22 data. These groups of data involve an extensive range of customers' opinions or  
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24 perspectives of products or services. As a result, researchers find traditional surveys a  
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26 challenging method for obtaining sufficient data from hotel guests. However, online  
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28 big data provided by anonymous users serve as an important tool for understanding  
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30 users' preferences because they are accompanied by a large number of satisfied or  
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32 dissatisfied comments.

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34 In addition, with the aid of computer technology, textual analysis helps  
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36 researchers investigate online data from websites. Computerized methods vary, but  
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38 the methods most frequently used in the tourism field are word-frequency analysis  
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40 (Berezina *et al.*, 2016) and Latent Dirichlet allocation (LDA) (Guo *et al.*, 2017). Word  
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42 frequency can be extracted and calculated by using software such as CATPAC (Lee  
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44 and Hu, 2005) or by writing a Python program (Wang *et al.*, 2019). For instance,  
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46 high-frequency keywords (staff, service, and room) were identified to show the most  
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48 frequent complaint factors (Lee and Hu, 2005). Word-frequency methods can enable  
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50 the mining of a large amount of textual data. Another computerized method is topic  
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52 models, such as LDA. These models measure the relationship among words by  
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54 cooccurrence (Guo *et al.*, 2017).

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56 In summary, the research aims of the study are to (1) identify the emergent  
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58 themes of hotel guests' satisfaction, (2) compare the attributes distribution of the  
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60 themes between Chinese and North American guests, and (3) compare the importance

of the themes (Functionality, Staff, and Price) for different satisfaction levels between Chinese and North American guests from a cross-cultural perspective.

### **3. Research procedure**

#### *3.1 Collecting the data*

This study collected a large scale of textual data from the two most influential travel websites in China, Ctrip.com and Tripadvisor.com. These two websites encourage users to share their experiences and information on the website. Therefore, the reviews have extensive perspectives and opinions, which provide rich information for a satisfaction study. Users are asked to post reviews with scores ranging from 1 to 5. Scores from 1 to 2 indicate users' dissatisfaction while scores from 4 to 5 indicate satisfaction. This study collected reviews from 261 (Ctrip.com) and 60 (Tripadvisor.com) hotels located in the 6 most famous tourism destinations (Shanghai, Beijing, Hangzhou, Chengdu, Guangzhou, and Xi'an) in China according to the ranking in Ctrip.com and Tripadvisor.com. By developing a Python program, various data such as the review score, the travel type, the review time, and a textual review can be automatically collected from the website. All reviews from Ctrip.com (from 2014 to 2018) and TripAdvisor (from 2004 to 2020) for each hotel were collected. Finally, after data cleaning, 656,374 Chinese reviews and 6,520 English reviews were obtained.

#### *3.2 Analyzing the data*

As the online reviews consist of a large amount of unstructured textual data, traditional methods such as reading through all the data, interpreting it and manual coding it are not feasible to manage the information load (656,374 reviews from Ctrip.com and 6,520 from tripadvisor.com). Thus, in this paper, word frequency with the aid of Python and topic modeling with Gephi software were adopted to extract meaningful information from the data. Python, a computer language, is widely used in computer science and could efficiently manage problems when an appropriate program was developed. Using Python to mine the textual data is more objective than

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4 using traditional approaches due to its computerized and mathematical nature. Gephi  
5 software has also been widely used to analyze textual data in the tourism and  
6 hospitality field. All reviews were consolidated into one sheet, and satisfied reviews  
7 (scores from 4 to 5) and dissatisfied reviews (scores from 1 to 2) were consolidated  
8 into another two sheets separately. The study's data analysis involved three steps.  
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13 First, the textual data in each spreadsheet was converted into a TXT file. Then, a  
14 Python program was set to calculate the frequency of the top 500 characters from the  
15 overall data/satisfied data/dissatisfied data. After the word-frequency calculation was  
16 completed, term reduction was conducted. Stops words and words that do not provide  
17 meaningful information such as “和” (and), “很” (very), “是” (is), “有” (have), “我”  
18 (I), and “说” (say) were removed. Then, words with similar meanings were  
19 consolidated into a common term. Finally, key words were obtained, which were  
20 translated into English by two researchers. Then, conflicts and disagreements were  
21 discussed with the third researcher to reach a final agreement on the word translation.  
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31 Second, a thematic analysis was conducted according to the previous literatures  
32 and the explicit meanings of the key words. Based on the previous literatures (Zhou *et*  
33 *al.*, 2014; Xu and Li, 2016; Padma and Ahn, 2020), three researchers were involved in  
34 the thematic analysis. First, two researchers became familiar with those words. Then,  
35 both of them developed broad theme categories and reached consensus on the  
36 proposed themes. Third, when disagreement arose during categorization, the third  
37 researcher was invited to negotiate and reach a final agreement. Finally, the themes  
38 were checked against the previous literatures again. Three themes were identified  
39 including *Functionality*, *Staff and Price*. *Functionality* covers subthemes such as  
40 room, travel, food, environment, and hotel facility. The percentage of each frequency  
41 was calculated to unearth the relative importance of each theme. The satisfied and  
42 dissatisfied data can be analyzed in the same way, revealing the differing importance  
43 of the theme between satisfied and dissatisfied data.  
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56 Third, topic modeling was conducted to visualize the attributes distribution of  
57 each theme for Chinese and North American guests. Finally, the importance of the  
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4 themes for different satisfaction levels was compared between Chinese and North  
5 American guests.

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#### 10 11 **4. Research results**

12 The current study collected 656,374 online reviews from Ctrip.com  
13 (Chinese reviews posted by Chinese guests) and 6,520 online reviews from  
14 Tripadvisor.com (English reviews posted by North American guests). Tables 1 and 2  
15 presents the data distributions in terms of cities, the travel group, and the year of  
16 review. In the reviews posted by Chinese guests, Shanghai hotels had the most  
17 reviews, followed by hotels in Beijing, Hangzhou, Chengdu, Guangzhou and Xi'an.  
18 Business guests posted the most reviews, while single guests provided the least.  
19 Review numbers peaked in 2017. In the reviews posted by North American guests,  
20 Beijing hotels had the most reviews, followed by hotels in Shanghai, Xi'an,  
21 Guangzhou, Hangzhou and Chengdu. Review numbers peaked in 2018. Guests from  
22 the United States accounted for 88.08% of the total, while Canadian guests accounted  
23 for 11.92% of the total.  
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##### 42 *4.1 Identifying emergent themes influencing hotel guests' satisfaction*

43 By using Python, the frequencies of the most frequent words were categorized  
44 into three themes: *Functionality*, *Staff* and *Price*. *Functionality* covers subthemes such  
45 as room, travel, food, environment, and hotel facility. Room covers attributes such as  
46 facilities and beddings, space, cleanliness, design/decoration, maintenance (well-kept  
47 or run down), style, view, and uniqueness. Travel includes the attributes of  
48 convenience and location. Food can be demonstrated by such attributes as food  
49 variety, food quality, and the dining environment. Environment refers to the serenity  
50 and scenery of the hotels' surrounding areas. Hotel facility covers such attributes as  
51 the entertainment facilities, the public area, and parking. *Staff* can be categorized into  
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4 service personnel, service procedure, and service attitude. *Price* means the room/food  
5 price and value for money.  
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10 **4.2 Comparing the attributes distribution of the themes between Chinese and North**  
11 **American guests**  
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15 **Insert Figures 3, 4, and 5**  
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20 Figures 3 and 4 shows the attributes distribution of the themes of Chinese guests  
21 and North American guests. Figure 5 reflects the cultural differences between China  
22 and North America by comparing Hofstede's six cultural dimensions (Hofstede  
23 Insights, 2017). From Figures 3 and 4, the attributes distribution of the themes  
24 between Chinese and North American guests has both similarities and distinctions.  
25 Overall, both Chinese and North American guests express several similar attributes,  
26 but Chinese guests experienced richer attributes for each theme. Specifically, the  
27 similarities and distinctions can be further explained by the distribution of the  
28 attributes of the three themes (*Functionality*, *Staff*, and *Price*). On the one hand, the  
29 attributes distribution of the theme *Functionality* between Chinese and North  
30 American guests has the following similarities. Both Chinese and North American  
31 guests pay attention to the *lifestyle*-related attributes in the five-star hotel context. For  
32 instance, "design", "style", "luxury", "decoration" and "modern" are frequently  
33 mentioned in the subtheme "room". This finding is consistent with the features of  
34 North American guests from a more *individualized society*. Since five-star (luxury)  
35 Chinese hotel guests have been considered young, wealthy and well-educated, they  
36 have been grouped into independent travelers with more intercultural awareness and a  
37 deeper understanding of cultural diversification (Gao *et al.*, 2018; Wang *et al.*, 2020).  
38 As a result, although Chinese independent travelers are profoundly influenced by their  
39 *collectivistic culture*, they also tend to highlight the *lifestyle*-related attributes, which  
40 are commonly featured in an *individualized* culture.  
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4 On the other hand, Figures 3 and 4 show that the attributes distribution of the  
5 subtheme room also has obvious differences. For instance, the figures show that,  
6 compared to their North American counterparts, in addition to the common attributes  
7 such as “bed”, “shower”, and “view” of the subtheme “room” and the *lifestyle*-related  
8 attributes, Chinese guests tend to express unique topics such as the “floor” and the  
9 “layout of room”. This finding is consistent with a *high power distance* society in that  
10 people tend to link the hotel stay to social norms, such as the layout of the room  
11 reflecting *luck* in Chinese geomantic culture or “Fengshui” (Wang *et al.*, 2020). The  
12 idea of the Chinese geomantic culture indicates the importance of the building  
13 location, room floor, room number, and layout of the room for its inhabitants’ good or  
14 bad luck (Wang *et al.*, 2020).  
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25 The subtheme “travel” also showed similarities and distinctions with regard to the  
26 attributes distribution between Chinese and North American guests. The similar  
27 features occur with the subtheme “room”, reflecting the *individualized characteristics*  
28 of Chinese independent guests in a *collectivistic culture*. For example, Chinese  
29 independent guests frequently mention the *lifestyle*-related attributes such as “scenic  
30 spot”, “tourist attraction”, “downtown area”, “shopping mall” and “restaurant”, which  
31 is similar to North American guests’ inclinations such as “go travel”, “trip”,  
32 “shopping”, “mall”, and “street”. However, compared to their North American  
33 counterparts, Chinese guests not only tend to point out these *lifestyle*-related attributes  
34 and regular attributes such as “transportation”, “airport”, “subway”, “location”, and  
35 “convenient” but also consistently express their concerns for “the distance to (CBD  
36 areas, stations, attractions)”, convenience for “ask for a taxi”, and whether the scenic  
37 spot or mall are “within walking distance”. This finding indicates that individuals  
38 (Chinese guests) are more careful, attentive and considerate coming from a *restrained*  
39 *society* (Hofstede, 1980, 2005).  
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54 Chinese and North American guests also share the attributes distribution of the  
55 subtheme “hotel facility”. For instance, both guests prefer entertainment facilities  
56 such as “swimming pool” and “gym”, reflecting the *lifestyle* inclination. This finding  
57 is consistent with the idea proposed by Hofstede (2005) that, in a more indulgence-  
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oriented society, North American guests are guided more by their desire to be happy, and Chinese guests (independent travelers) will gradually become *indulgence-oriented* even when they come from a restrained culture. However, the distinctions of the attributes distribution of this subtheme are also obvious. Compared to North American guests, Chinese guests tend to not only focus on entertainment facilities but also highlight facilities such as “entrance”, “lift”, “parking” and “parking lot”. This finding also proved that individuals (Chinese guests) are more careful, attentive and considerate when they come from a *restrained society* (Hofstede, 1980, 2005). The results can also be explained by a long- vs. short-term orientation. From a long-term-oriented culture, Chinese guests emphasize “hot spring”, which is considered beneficial for one’s long-term physical health. North American guests, from a short-term-oriented culture, tend to choose *lifestyle* entertainment such as “bar” and “club”.

The attributes distribution subthemes (“environment” and “food”) also showed the features of Chinese guests’ (independent travelers) *individualism- and indulgence-oriented* tendencies from a *collective and restrained* culture. For example, Chinese guests describe very rich “environment” related attributes such as “surrounding environment”, “surrounding area”, “landscape”, “beautiful environment”, and “scenery”. These attributes are even richer than those mentioned by North American guests. Similarly, “food”-related attributes mentioned by both Chinese and North American guests indicate *indulgence-oriented* inclinations such as “rich”, “tasty”, “delicious”, “variety”, “buffet”, “fruits”, “drinks”, “tea” and “coffee”.

Another attributes distribution of the theme *Staff* exhibits the greatest differentiations between Chinese and North American guests. Figures 3 and 4 show that Chinese guests expressed richer attributes related to staff’s performance such as “considerate”, “in place”, “warm”, “passionate”, “personalized”, “take initiative help”, “focus on detail”, and “handle problem”. These results can be examined in the context of a high or low power-distance culture. In a high power-distance society, the relationship between service providers and guests is distinct from the same relationship in a traditional social hierarchy because of the philosophy “the customer is king” in the hospitality field. Service providers may not feel superior to guests in a

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4 hotel. A high power-distance culture emphasizes social status; therefore, personalized  
5 service fulfills Chinese guests' expectation for a higher social status.  
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8 In addition, Chinese guests, considered more collectivistic, expect more close  
9 relationships with staffs and ask for more personalized service in the luxury hotel  
10 context (five-star hotel context). They experience more diverse dimensions of  
11 personalized service during the hotel stay. However, North American guests  
12 (individualists) are found to be more masculine and rational when they experience  
13 hotel service. Moreover, because the Chinese culture features relatively high  
14 uncertainty avoidance and is long-term oriented, personalized service helps maintain  
15 harmonious relationships between service providers and guests. Finally, the attributes  
16 distribution of the theme *Price* is similar between Chinese and North American guests  
17 in the five-star hotel context. This finding indicates that “*price*”-related attributes  
18 seem to have little impact on all guests' satisfaction.  
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#### 31 *4.3 Comparing the changing importance of the themes for different satisfaction levels* 32 *between Chinese and North American guests* 33 34

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36 *Insert Figures 6 and 7*  
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41 Figures 6 and 7 show that the importance of the themes (*Functionality*, *Staff*, and  
42 *Price*) for different satisfaction levels is changing for Chinese guests, while it remains  
43 stable for North American guests. The importance of the themes is represented by  
44 average word frequency of the themes for different satisfaction levels. In the high  
45 satisfaction level, the importance of the themes is similar between Chinese and North  
46 American guests. The importance of *Functionality* ranks first, followed by the  
47 importance of *Staff* and *Price*. In the middle level of satisfaction, although the  
48 importance of *Functionality* still exceeds the importance of *Staff*, the former gradually  
49 decreases while the latter gradually increases for Chinese guests. In the low  
50 satisfaction level, the importance of *Staff* matches the importance of *Functionality* and  
51 even exceeds it for Chinese guests. However, each theme has only a mild fluctuation  
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4 from the high to the low satisfaction level for North American guests. The importance  
5 of price remains stable for different satisfaction levels in the five-star hotel context.  
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7 Compared to the previous literatures, the results offer a new insight from a  
8 *dynamic perspective* of a satisfaction study. In the previous literatures, the  
9 relationship between satisfaction attributes and the Hofstede dimensions are static.  
10 For instance, by analyzing online customer reviews on Amazon.cn, Zhu *et al.* (2017)  
11 found that Chinese guests tend to mention functionality more frequently. Leon (2018)  
12 also proved that individuals from collectivistic cultures are more likely to mention  
13 functionality such as rooms and meals in a hotel stay. However, with the aid of a large  
14 amount of textual data, this study investigated the relationship between satisfaction  
15 attributes and the Hofstede dimensions from a dynamic perspective and revealed that  
16 the importance of the themes (*Functionality*, *Staff*, and *Price*) for different satisfaction  
17 levels has been changing, especially for Chinese guests from collectivistic cultures.  
18 The importance of *Functionality* exceeds the importance of *Staff* and *Price* in the high  
19 satisfaction level, while *Staff* is slightly more critical than *Functionality* in the low  
20 satisfaction level.  
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34 According to cross-cultural theory, Chinese society is considered to have a high  
35 power-distance and a relatively high uncertainty avoidance, to be long-term oriented  
36 and masculine and to be characterized by restraint (Hofstede, 2005; Liu *et al.*, 2017).  
37 A high power-distance means that individuals are more likely to expect social status,  
38 the relatively high uncertainty avoidance and long-term orientation reflect  
39 individuals' inclination to seek harmony, and restraint indicates that individuals are  
40 more careful and considerate than their counterparts in other cultures (Hofstede,  
41 2005). As a result, Chinese guests tend to expect professional and personalized  
42 service to emphasize their social status in a relatively high satisfaction level.  
43 However, when they are angered by terrible service in the low satisfaction level, their  
44 complaints for *Staff* would surge even when they come from a high uncertainty  
45 avoidance, long-term oriented and pursuing harmony culture. The results of the study  
46 are distinctive because they investigate the relationship between satisfaction attributes  
47 and the Hofstede dimensions for different satisfaction levels.  
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## 5. Conclusion and discussions

### 5.1 Conclusion

The current study have three aims. The first aim is to investigate guests' overall satisfaction at Chinese five-star hotels. The results suggest that the key themes include *Functionality, Staff and Price*. *Functionality* can be further categorized into five subthemes: room, travel, food, environment and hotel facility. The findings are largely consistent with the attributes identified in previous studies (Ranjbari *et al.*, 2020; Padma and Ahn, 2020; Li *et al.*, 2020). The second aim is to compare the attributes distribution of the themes between Chinese and North American guests. Chinese guests tend to mention both *lifestyle-* and *social norms*-related attributes and expect personalized service, while North American guests mainly prefer to describe *lifestyle*-related attributes and standardized service. The third aim is to compare the changing importance of the themes (*Functionality, Staff, and Price*) for different satisfaction levels between Chinese and North American guests. As the satisfaction level decreases, the importance of *Functionality* decreases, that of *Staff* increases, and that of *Price* remains stable for Chinese guests. However, the importance of each theme fluctuates only mildly from the high to the low satisfaction level for North American guests.

### 5.2 Theoretical implications

Theoretically, this study contributes to the existing satisfaction literature from a cross-cultural perspective. First, although the identified themes (*Functionality, Staff, and Price*) are largely consistent with previous studies (Xu and Li, 2016; Padma and Ahn, 2020), this study further explores the attributes distributions of each theme and linked those attributes to Hofstede dimensions, generating distinctive findings from a cross-cultural perspective. For instance, on the one hand, the study unearths the *individualized and indulgence-oriented features* of Chinese guests (independent travelers) such as *lifestyle* inclinations even for travelers from a collectivistic culture. On the other hand, Chinese guests from a *high power-distance* culture tend to

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4 highlight *social norms*–related attributes such as choosing to stay in a *lucky* room  
5 (appropriate layout). Meanwhile, North American guests from an *individualistic and*  
6 *indulgence-oriented* culture are more likely to mainly emphasize *lifestyle*-related  
7 attributes. In addition, Chinese guests from a *high power-distance* culture, expect high  
8 social status during their stay and ask for more personalized service in the luxury  
9 hotel context (five-star hotel context). North American guests (individualists) are  
10 found to be more rational when experiencing hotel service. Although satisfaction  
11 attributes have been extensively explored in previous literatures, very few studies  
12 have linked them to Hofstede dimensions. The current findings extend the  
13 understanding of hotel satisfaction from a cross-cultural perspective.  
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23 Second, the study reveals the changing importance of the themes (*Functionality,*  
24 *Staff,* and *Price*) for different satisfaction levels and permits a more profound  
25 understanding of the law of hotel satisfaction. In the high satisfaction level, Chinese  
26 guests mentioned *Functionality* most frequently, followed by *Staff* and *Price*. In the  
27 middle level of satisfaction, the focus on *Functionality* still exceeds that on *Staff,*  
28 although the former gradually decreases while the latter gradually increases for  
29 Chinese guests. In the low satisfaction level, the emphasis on *Staff* gradually matches  
30 that on *Functionality* and even exceeds it for Chinese guests. Although *Functionality,*  
31 *Staff* and *Price* have been deeply investigated in previous literatures, these themes  
32 have been examined primarily from a static perspective. Previous literatures proved  
33 that people (e.g., Chinese guests) are more likely to accept inequality, avoid conflicts  
34 with hotel managers, and emphasize long-term relationships (Hoare and Butcher,  
35 2008) when they come from high power distance, long-term orientation and relatively  
36 high uncertainty avoidance cultures (Hofstede, 2009). For example, compared to non-  
37 Chinese guests, Chinese guests complains less in terms of service quality, space,  
38 cleanliness, location, noise, food, facilities, price, amenities, and decorations (Au *et*  
39 *al.*, 2014). This study argues that these results from previous literatures ignored the  
40 variances in guests' attitudes at different satisfaction levels. For instance, when guests  
41 are angry about terrible service, their complaints would surge even when they come  
42 from a culture with a high uncertainty avoidance and tendency to pursue harmony.  
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4 The current findings distinctively explore the importance of satisfaction attributes  
5 from a dynamic angle and obtain new in depth insights regarding satisfaction.  
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8 Third, the findings offer a new perspective from which to differentiate the market  
9 segmentation of hotel guests. They indicate that Chinese guests in five-star hotels can  
10 be described as independent travelers. This market segment has been considered  
11 young, wealthy, and well-educated, with greater intercultural awareness and a deeper  
12 understanding of cultural diversification (Wang *et al.*, 2020). This finding suggests  
13 that this market segment (independent travelers) possesses the characteristics of being  
14 collectivistic, having a high power-distance, having relatively high uncertainty  
15 avoidance, being long-term oriented, and coming from a restraint culture. In addition,  
16 these travelers tend to seek *lifestyle*-related attributes that are commonly featured in  
17 an *individualized* culture. On the one hand, even in a collectivistic society, the  
18 *lifestyle*-related attributes are frequently found in the subthemes of *Functionality*  
19 (room, travel, hotel facilities, environment, and food). On the other hand, belonging to  
20 a high power-distance culture causes them to be accustomed to following social  
21 norms and expecting personalized service to enhance social status. However, North  
22 American guests mainly tend to highlight the *lifestyle*-related attributes  
23 (*Functionality*) and to ask for standardized service (*Staff*).  
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39 Specifically, the findings imply that Chinese guests (independent travelers) are  
40 gradually more individualized and indulgence oriented in the five-star hotel (luxury  
41 hotel) context. They also indicate that, in a high power-distance culture, Chinese  
42 guests can still become accustomed to obeying social rules such as *luck* (layout of the  
43 building/room), physical health (room above the third floor), and windows facing  
44 south (plenty of sunlight). In an individualistic culture, guests' satisfaction mechanism  
45 works through seeking fun such as "bar" and "club". In addition, Chinese guests from  
46 a high power-distance, relatively high uncertainty avoidance and long-term oriented  
47 society expect personalized service with features such as "considerate", "in place",  
48 "passionate", "personalized", "take initiative help", and "focus on detail", reflecting  
49 their unique features of social status seeking, carefulness and harmony preference.  
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51 Meanwhile, in an individualistic culture, guests mainly ask for standardized service  
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4 such as “friendly”, “warm” and “attentive”. Thus, the findings generate valuable  
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6 implications for distinguishing between Chinese (independent travelers) and North  
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8 American guests.  
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### 10 11 5.3 Practical implications 12

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14 Pragmatically, implications from the findings are beneficial for positioning  
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16 strategies, marketing and branding in hotel management. Although satisfied and  
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18 dissatisfied attributes have been extensively examined in the hospitality field, a cross-  
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20 cultural perspective would be a more effective way of understanding hotel guests’  
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22 behavior. The Hofstede dimensions including power distance, individualism-  
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24 collectivism, uncertainty avoidance, long- vs. short-term orientation, and indulgence-  
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26 restraint serve as inner drivers for guests’ behavior and offer a deeper insight for  
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28 market segmentation. For instance, facilitating both *lifestyle*- and *social norms*-related  
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30 features for Chinese guests and mainly *lifestyle*-related features for North American  
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32 guests may lead to higher satisfaction. Personalized service for Chinese guests and  
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34 standard service for North American service could be competitive advantages for  
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36 five-star hotels in China. The changing importance of the themes (*Functionality*, *Staff*,  
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38 and *Price*) for different satisfaction levels further indicates that good performance of  
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40 *functional*-related attributes could enhance satisfaction and that better staff  
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42 performance would reduce dissatisfaction.

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44 Overall, the three identified themes (*Functionality*, *Staff*, and *Price*), the attributes  
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46 distribution of each theme and the changing importance of the themes for different  
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48 satisfaction levels unearth the law of hotel guests’ satisfaction a step further. The  
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50 findings provide new insights for management, branding and marketing segmentation.  
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52 Based on the findings, to enhance guests’ satisfaction, hoteliers should position  
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54 strategies to cater to the features of guests from high or low power-distance, from  
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56 collectivistic or individualistic cultures, with high or low uncertainty avoidances, with  
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58 long- or short-term orientations, and from an indulgence- or a restraint-oriented  
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60 culture. Hoteliers should make efforts to offer both *lifestyle*- and *social norms*-  
oriented features as well as personalized service experiences for Chinese guests, while

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4 providing lifestyle-oriented features and standardized service for North American  
5 guests. The findings not only provide valuable implications for hotel management, but  
6 also contributes to the consumer behavior literature by segmenting different markets,  
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8 investigating satisfaction from a dynamic instead of a static perspective and revealing  
9 the inner drivers of consumer behavior from a cross-cultural perspective. These  
10 findings extend satisfaction studies and are beneficial for researchers in other  
11 consumer behavior domains.  
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#### 19 *5.4 Limitations and future research*

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21 There are still some limitations remain for this study. First, data from the study  
22 were confined to Chinese and North American guests. For cross-cultural research, the  
23 opinions of guests from other regions should be assessed in future studies, such as  
24 Europe, Oceanic countries, other regions of Asia and beyond. Guests from different  
25 countries and regions may generate different outcomes for hotel satisfaction. Second,  
26 the data for the study were confined to five-star hotels in China. Future studies could  
27 compare the features of satisfaction among different kinds of hotels such as boutique  
28 hotels, homestays, budget hotels and Airbnb. Third, in comparison, the textual data  
29 available from tripadvisor.com are far fewer than those from ctrip.com. Future studies  
30 could collect more rich data to attest the results. Finally, collecting data from online  
31 travel websites only involves potential shortcomings. Future studies could adopt data  
32 from different sources, including first-hand such as through interviews and  
33 questionnaires. Quantitative or mixed methods could be adopted to further explore  
34 satisfaction and dissatisfaction in the hospitality field.  
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Table 1. Features of Chinese guests' textual reviews

Item	Frequency	Percentage
<b>Hotel locations</b>		
Shanghai	261214	39.80%
Beijing	165290	25.18%
Hangzhou	91084	13.88%
Chengdu	60851	9.27%
Guangzhou	63512	9.68%
Xi'an	14423	2.20%
<b>Year of review</b>		
2014	3793	0.58%
2015	133594	20.35%
2016	202954	30.92%
2017	244139	37.20%
2018	71894	10.95%
<b>Travel group</b>		
Family	210458	32.06%
Business	247718	37.74%
Friends	67296	10.25%
Couple	60027	9.15%
Single	27124	4.13%
Unknown	43751	6.67%

Table 2. Features of North American guests' textual reviews

Item	Frequency	Percentage
<b>Hotel locations</b>		
Shanghai	1957	30.02%
Beijing	2092	32.09%
Hangzhou	397	6.09%

Chengdu	390	5.98%
Guangzhou	555	8.51%
Xi'an	1129	17.32%
<b>Year of review</b>		
2004-2009	189	2.90%
2010	145	2.22%
2011	353	5.41%
2012	580	8.90%
2013	818	12.55%
2014	949	14.56%
2015	288	4.42%
2016	222	3.40%
2017	765	11.73%
2018	1163	17.84%
2019	1006	15.43%
2020	32	0.50%
Unknown	10	0.15%
<b>Guest's origin</b>		
United States	5743	88.08%
Canada	777	11.92%

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Figure 1. Screenshot of an online review from Ctrip.com

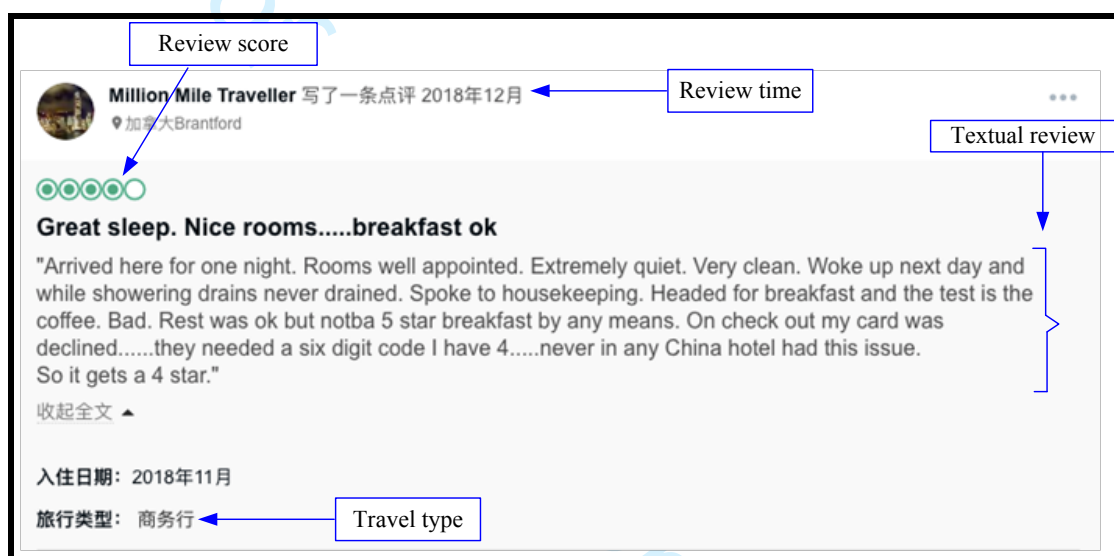


Figure 2. Screenshot of an online review from Tripadvisor.com

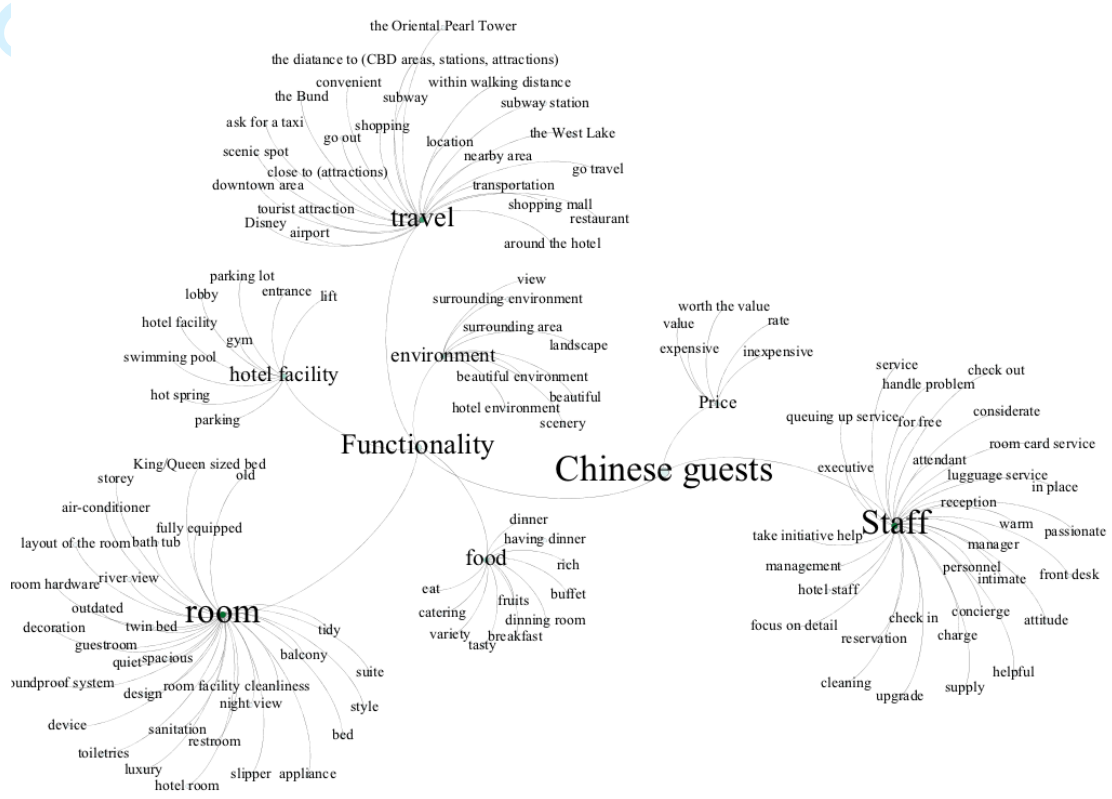


Figure 3. Attributes distribution of Chinese guests' hotel satisfaction

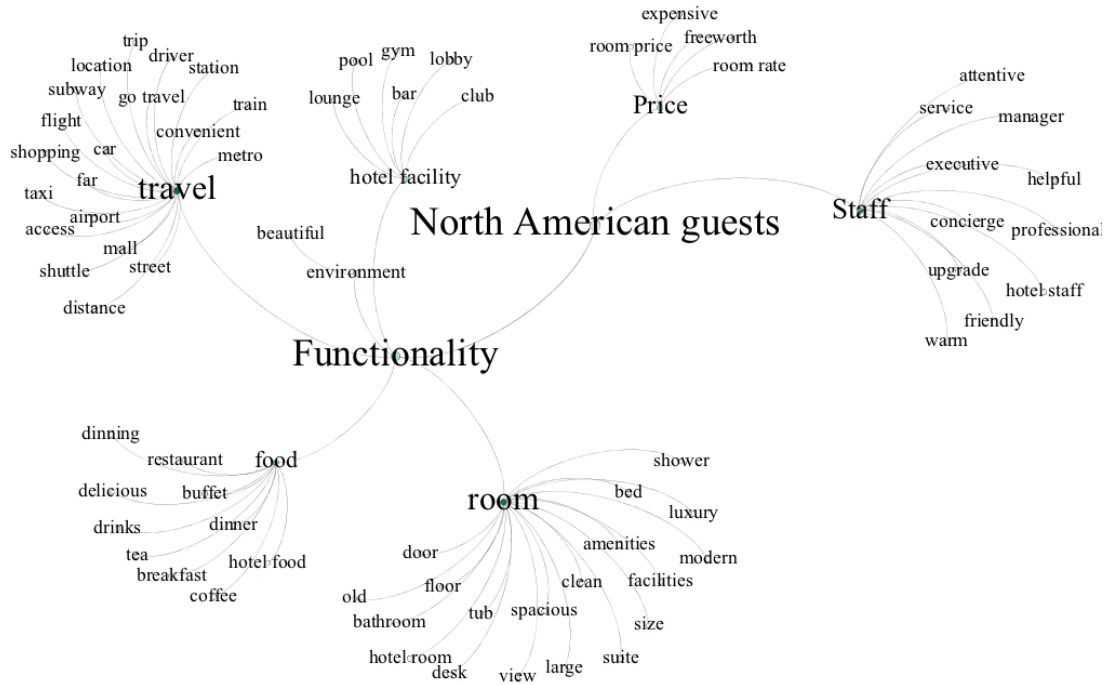


Figure 4. Attributes distribution of North American guests' hotel satisfaction

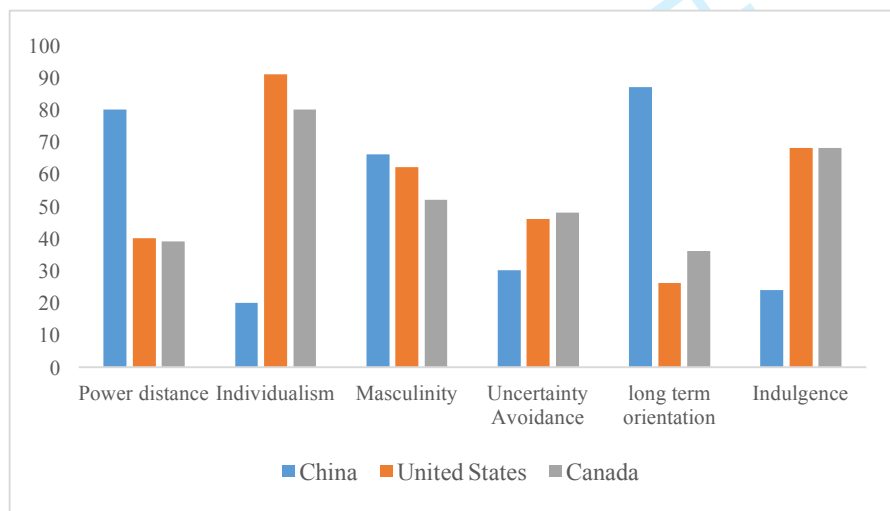


Figure 5. Country comparison using Hofstede's six cultural dimensions (Hofstede Insights, 2017)

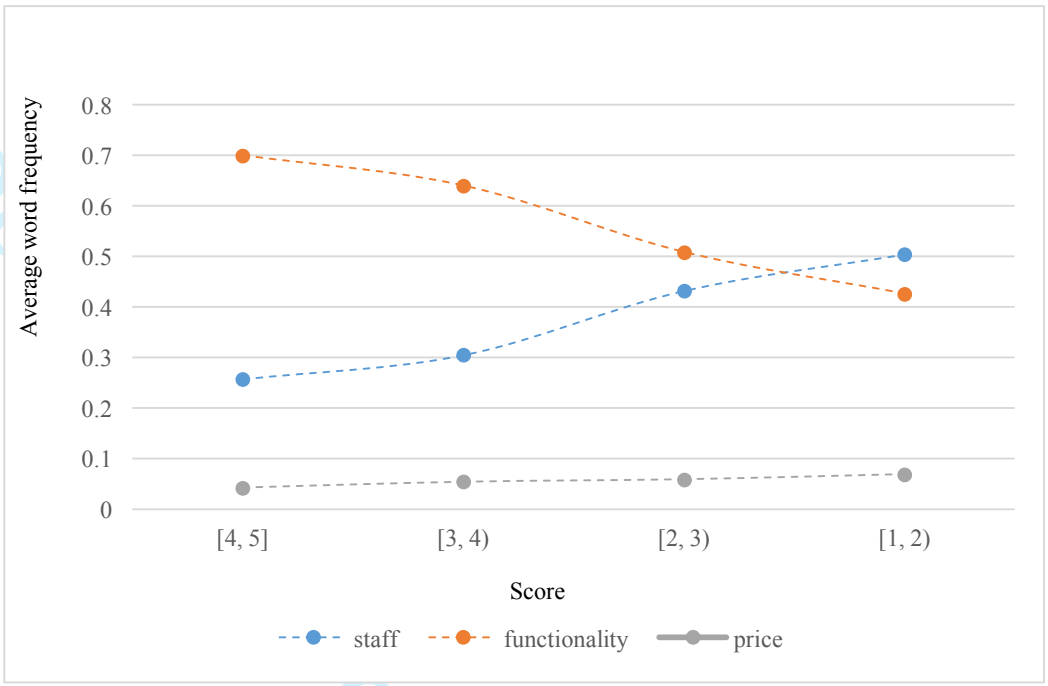


Figure 6. The changing importance of each theme for different satisfaction levels (Chinese guests)

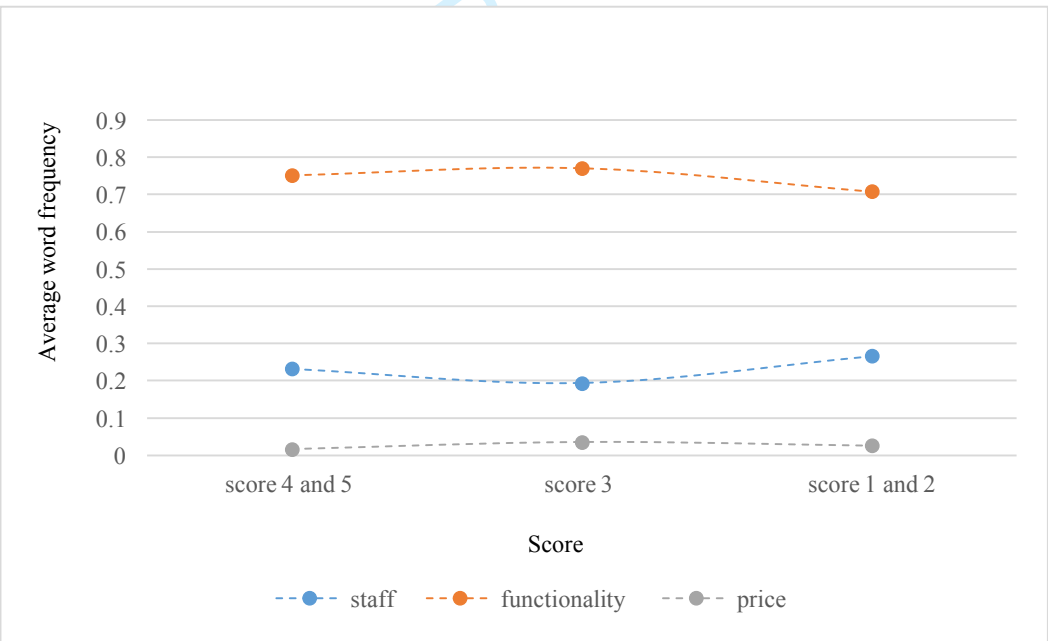


Figure 7. The changing importance of each theme for different satisfaction levels (North American Guests)

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Author Response Form

When revising your paper, please prepare this report explaining how you have responded to each reviewer's comments and suggestions specifically.

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2.	

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Suggestions/comments from the Reviewer	Response from the Author(s)
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2.	

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Suggestions/comments from the Reviewer	Response from the Author(s)
<p>1. The main problem is still academic writing. Let me show an example in terms of aims/objectives: Aim in abstract: "The paper aims to examine hotel guests' satisfaction from cross-cultural perspective in the context of Chinese five star hotels." In introduction you add something else: "The research aims to examine hotel guests' satisfaction from cross-cultural perspective in the context of Chinese five star hotels and develop a computerized approach to evaluate emergent themes, assess attributes distribution of each them and the changing importance of each theme and in different satisfaction level." At the end of introduction you add something more and/or change your aim slightly: "...the current research aims to differentiate market segmentations and demonstrate the practical implications for hospitality industry." Then at the end of literature review, I assume you are trying to summarize your aims? "In summary, the research aims of the study is to (1) identify the emergent themes of hotel guests' satisfaction; (2) compare attributes distribution of the themes between Chinese and North American guests from cross-culture perspective; (3) compare the importance of the themes (Functionality, Staff, Price) in different satisfaction level between Chinese and North American" And at some point, you talk about one objective: "The objective of the current study is to investigate the dynamic changing importance of satisfaction attributes in different satisfaction level." Academic writing part has not been improved! Very clear aim(s) and/or objective(s) which should not confuse but help the reader and guide him/her throughout the paper. Similar academic writing problems continue throughout the paper.</p>	<p>The authors revised research aims as follows (and make sure that the aims, when mentioned, are consistent and written in full):</p> <p>The paper aims to identify the emergent themes of hotel guests' satisfaction, compare the attributes distribution of the themes between Chinese and North American guests, and compare the importance of the themes for different satisfaction levels between Chinese and North American guests from a cross-cultural perspective.</p> <p>The authors have also re-checked the writing of the entire document to correct any academic writing problems: inconsistencies and clarity of expression.</p>
2. And grammatical mistakes are still quite many.	The authors have obtained professional English language editing service to check the language of the manuscript before submitting this revision.
3.	