

Effect of Cultural Distances on Online Reviews

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Online reviews provide a medium for customers to comment on products or experiences from anywhere across the world. This study examines the effect of culture on the review ecosystem, which comprises of the reviewed object and the reviewer. We propose that the difference in culture of the countries of reviewed and the reviewer will affect the way a reviewer rates the reviewed object. We test our research questions in the context of the hotel industry. Our dataset comprises of reviews extracted from TripAdvisor and we measure cultural distances by using Hofstede's indexes. We have tested our research questions for an initial dataset of reviews and have found some encouraging results. We present the management implications for the initial findings and chart the further course of actions for this research.

Keywords: Reviews, culture, text-analysis

Paper track: Marketing Strategy & Theory

1. Introduction

The internet has become a global phenomenon in the past decade, with the number of users having more than doubled (4.6 billion people, 59.6% of the world population) (InternetWorldStats, 2020). Using the internet, consumers make their voices heard on various topics via blogs, reviews on websites and apps, wikis, and communities (Tirunillai & Tellis, 2012).

Reviews on various fora, known as user generated content (UGC), have been researched extensively in the marketing literature. Consumers are increasingly using these peer-generated reviews for information in purchasing consumer products as well as experience goods such as electronics, gaming, and entertainment, products among others (Yang, 2013). In our study, we explore the influence of culture on consumer reviews. We study the influence of the cultural distance between the country of the person writing a review and the country of the object under review to assess the impact it has on UGC. For the purpose of this research, we consider the setting of online travel portals and study the reviews by users for different hotels around the world.

We feel that culture is an important aspect to study in a review ecosystem for services and experiences. We want to find out what effect a cultural mismatch has on the overall rating of the reviewed. Does increased cultural distance affect an experience for a traveller due to mismatched expectations, even though the experience or feature may be a cultural norm in the country visited? And if so, does this get reflected in the review text and overall rating given to the experience? We feel that this research will help shape management decisions for businesses that host travellers from various cultures.

2. Literature Review

To understand the role of culture on reviews, we first look at the research conducted in the area of reviews and UGC, and the methods used to study these reviews. We review past studies in the context of travel portals. Given our interest in the role of culture on reviews, we also examine the literature on culture.

Some tourism-related research has previously focussed on user generated reviews. Research has focussed on hotel attributes, finding room is most important and location the least (Rhee & Yang, 2015). Prior research also focusses on the dependence of rating patterns on hotel type (chains versus individual), and varied results have been found across traveller

types and regions (Banerjee & Chua, 2016). Language of origin of the traveller has also been studied and multiple observations, like the generosity of English-speaking guests while rating hotels, have been documented (Liu, Teichert, Rossi, Li, & Hu, 2017).

In today's era, where international travel has increased rapidly (UNWTO, 2018), hotels must develop practices to satisfy a diverse customer base (Seo, 2007). Culture is one element that business owners must understand in order to provide superior services to cater to customer needs, and it is necessary to consider culture when interpreting customer satisfaction ratings (Ueltschy, Laroche, Eggert, & Bindl, 2007). Arguably, the most popular dimensions of cultural difference measurement between two countries on fixed parameters is that of Hofstede (1980), which we use in our research.

The dependence of user generated online content on culture has been studied to some extent, but only a few have been done in the tourism industry. A study focusses on the impact of language differences on UGC (Liu, Teichert, Rossi, Li, & Hu, 2017). Culture and its effect on the tourism industry has also been studied earlier (Wang, Vela & Tyler, 2008, Crotts & Erdmann, 2000).

From the research reviewed, we find that, to the best of our knowledge, there has been no study of the effect of cultural distance of the reviewer and the reviewed object on a review. Through our research, we aim to cover this in the context of hotel reviews.

3. Conceptual Model

Our model is based on mining reviews of different hotels on travel websites. Text mining and the study of UGC, especially customer reviews, have been done in multiple fields in the past (Berger et al., 2020). Our paper uses tourism portals as a setting to mine and study UGC in order to investigate the effects of difference of culture on ratings.

The review ecosystem consists of the reviewer who has authored the review and the object being reviewed. Our model is built to investigate the cultural differences of these components of the ecosystem. We believe that this is of significance because differences in culture may bring out an expectation mismatch to the reviewer's experience of the object, which is then reflected in his or her reviews. A traveller may react in a negative or a positive way when he or she is put in an unfamiliar environment, and we want to examine whether this is reflected in the review written. Oberg (1960) defines cultural shock as an anxiety that is precipitated from losing all familiar signs and symbols of social intercourse. Because cultures across the world are diverse, we investigate if this cultural shock plays an effect on

reviews. A traveller may also want to experience a cultural difference. Barroso et al. (2007) suggest a significant influence of variety-seeking behaviour in the intentions of tourists. This may, therefore, translate into positive-toned reviews.

In our model, we test whether cultural distances between the reviewer and the reviewed object, on the lines of Hofstede's six indexes, make features and experiences of the hotel stand-out in a positive or negative way to the reviewer, and affect the overall rating of the review. We test different features – tangible features like location and room of the hotel, and intangible features like value, staff and service that the hotel provides. For now, we have tested two of these features for a limited set of reviews – staff and service, and location of the hotel.

3.1 Staff and service

The hospitality industry is driven by staff whose job is to help the guests and run the hotel. The staff and their service plays a big part in the overall experience. People from different cultures have different expectations from the hotel staff. Power Distance Index (PDI) is a scale that defines the acceptance by people of a particular culture about the current order of things. People low on the PDI do not comply with the current order of things, and challenge an existing system. Thus, we ask:

Research Question 1: When a reviewer, who is from a country which is culturally distant on the PDI parameter from the hotel's country, writes a review focussed on staff and service of the hotel, how does this cultural distance affect the overall rating of the review?

3.2 Location

Location of a hotel is important for a number of reasons to tourists. Proximity to popular locations gives a tourist a hassle-free holiday. The Uncertainty Avoidance Index (UAI) measures the level of comfort with ambiguity for guests. Thus, we intend to ask the following questions:

Research Question 2: When a reviewer, who is from a country which is culturally distant on the UAI parameter from the hotel's country, writes a review focussed on location of the hotel, how does this cultural distance affect the overall rating of the review?

4. Data

As a setting for the study, we use the online travel portal TripAdvisor, which currently helps close to 460 million users a month and contains more than 860 million reviews of 8.6

million restaurants, hotels, airlines, and other travel-related features (“About TripAdvisor,” 2019). The platform provides the facility to write an in-depth review of the stay. The structure of the review demands a heading and the whole review text from the user. Each review has an option of rating (out of five) individual parameters of the stay such as “Room”, “Service”, “Location”, “Cleanliness” and “Value”. The website also gives basic details about the reviewer along with the review. The name and the country of the reviewer can be extracted. This provides us an opportunity to identify the culture he or she comes from. Thus, TripAdvisor is an ideal platform to perform this study.

We have extracted 1,300 reviews from three hotels. We scraped and retained all the reviews of the selected hotels which mention the country of origin of the reviewer, because the other reviews do not provide a way to measure cultural distance. We extracted the review headers, review text, the individual parameter ratings (wherever applicable), the name and country of the reviewer, the number of helpful votes, and the name and country of each helpful vote from every review of our set of hotels. We chose three diverse hotels from the countries of Peru, Morocco, and Turkey, with the aim of representing different cultures.

5. Research Design

For the first research question, our analysis focusses mainly on the relation between four parameters: (a) the difference of PDI between the hotel’s country and the reviewer’s country (PDIDifference), (b) the fraction of words that refers to the staff and service of the hotel out of all the words of the review (StaffServiceWordsProportion), (c) the interaction term formed by the product of these variables (InteractionPDISTaffService), and (d) hotel fixed effects (HotelName), to control for hotel level idiosyncrasies. We checked the effect of these four variables on our dependent variable, the overall review rating (OverallRating). Thus, the results reported are on the following equation:

$$\text{OverallRating} = \beta_0 + \beta_1 \text{PDIDifference} + \beta_2 \text{StaffServiceWordsProportion} + \beta_3 \text{InteractionPDISTaffService} + \beta_4 \text{HotelName} + \xi \quad (1)$$

For the independent variables, the PDIDifference was taken for all 1300 reviews since we ensured that the data that was used in the analysis consisted of entries where the country information of the reviewer was available. We calculated the StaffServiceWordsProportion as follows:

$$\text{StaffServiceWordsProportion} = (\text{number of words of a review that speak about staff and service}) / (\text{total number of words of the review}) \quad (2)$$

We first extracted all the words of a particular review and removed the stop-words using the standard NLTK package in Python. Next, to identify the relevant words about staff and service, we used prior literature and some collaborative effort to construct a dictionary that addressed staff and service keywords (Lee et al., 2011; Boon et al., 2013). In addition, we requested three research scholars to go through 100 reviews each and identify the words and prefixes that they most related with staff and service. Using both these approaches, we came up with a dictionary addressing staff and service (Table 1). We analysed all the reviews that had stop-words removed against this dictionary, and accounted for the proportion of words out of the review that spoke about staff and service.

Table 1. Dictionary for staff and service words

Accomodat	Answer	Anticipat	Apologize	Assist	Attentive	Bill	Care	Checkin	Check-In
Checkout	Check-Out	Communicate	Compassion	Complain	Complementary	Complimentary	Convenient	Coupons	Delay
Detail	Discounts	Driver	Duty	Effort	Escort	Events	Experience	Explain	Fault
Fix	Free	Friend	Front desk	Front-Desk	Giveaway	Gracious	Greet	Guest	Guide
Happening	Help	Hospitality	Immediate	Interact	Issue	Late	Laundry	Manag	Mistake
Need	Nice	Owner	Pamper	Pick	Polite	Preference	Problem	Professional	Quality
Reception	Request	Respect	Rude	Serv	Settle	Small	Smile	Sorry	
Special	Speed	Staff	Sweet	Talk	Team	Time	Told	Trained	Trouble
Types	Waited	Warm	Warm	Welcom	Wish	work	Luggage	Instruct	Personel
Cheerful	Kind	Efficien	Eager	Fast	Argue	Hustl	Manner	Clean	Impatien
Arrogan	Reluctan								

For the second research question, we followed a similar approach. The four variables under consideration were: (a) the difference of UAI between the hotel's country and the reviewer's country (UAIDifference), (b) the fraction of words which speak about staff and service of the hotel out of all the words of the review (LocationWordsProportion), (c) the multiplication of both of these variables to check the combined effect of both (InteractionUAIlocation) to check the interaction effect between the parameters, and (d) hotel fixed effects (HotelName). We arrived at the equation:

$$\text{OverallRating} = \beta_0 + \beta_1 \text{UAIDifference} + \beta_2 \text{LocationWordsProportion} + \beta_3 \text{InteractionUAIlocation} + \beta_4 \text{HotelName} + \xi \quad (3)$$

We constructed a dictionary for the location words of the review (Table 2), following a similar approach as was done for the staff and service. Here too, we removed the stop-words to find the proportion of location related words. The proportion of location words is defined as:

$$\text{LocationWordsProportion} = (\text{number of words of a review that speak about location}) / (\text{total number of words of the review}) \quad (4)$$

Table 2. Dictionary for location words

Locat	Close	Proximity	Town	Hidden	Airport	Area	River	Sea	Beach
Far	City	Centre	Center	Block	Street	Central	Access	Minute	Hour
Region	Neighb	Venue	Square	Distance	Walk	Sight	River	Situate	Position
Convenient	Foot	Next	Train						

6. Results and Discussions

We tested our research questions against the 1300 extracted reviews and the results are presented in Table 3. We set out to find whether culture plays a role in how reviewers rate a particular object, in our case, a hotel. With regards to our first research question, we find that the interaction term, namely the cultural distance weighted proportion of staff and service words is significant for these sets of reviews. This result signifies that if a reviewer is

Table 3. Output of regression analysis for both research questions

Dependent Variable: Overall Rating	Model 1	Model 2
Intercept	4.58 *** (0.06)	4.58 *** (0.06)
InteractionPDISTaffService	-0.03 * (0.02)	-
PDIDifference	0.004 * (0.002)	-
StaffServiceWordsProportion	1.35 ** (0.44)	-
HotelName Ibis Meknes Hotel	-1.2 *** (0.06)	-1.2 *** (0.001)
HotelName Maxx Royal Kermer Hotel	0.17 *** (0.04)	0.18 *** (0.07)
InteractionUAILocation	-	-0.01 (0.02)
UAIIDifference	-	0.004 (0.001)
LocationWordsProportion	-	1.8 ** (0.86)
Adjusted R squared	0.23	0.23

Notes: Standard errors in parentheses; ***significant at 0.01, ** significant at 0.05, * significant at 0.1

culturally distant from the object under review and writes a review about the staff and service, it has an overall negative impact on the overall review rating. This result implies that in our limited set of reviews, people experience cultural shock when it comes to staff and service aspects, and this in turn makes the reviewer rate the hotel negatively.

We feel that this result has important consequences. The results say that wide cultural distance tend to cause cultural shock, and thus businesses hosting such guests must train their employees to deal with this diversity. All efforts must be made to reduce cultural shock because affected visitors are more inclined to writing unfavourable reviews. Since this is caused by the staff and their level of service, this can be pre-empted by proper training of hotel employees.

We plan to add a control variable of 'travel type,' which can be extracted from TripAdvisor. The forum tells us if the reviewer has travelled with family, as a couple, on business, with friends or individually. We feel that this is a valid control variable since travelling with family creates greater demands and expectations from the service of a hotel.

In our second research question, we test the role of location on the overall review rating for reviews written about location. In this regression analysis, we find that even though the variable for location-words proportion is significant, the interaction variable is not. This means that the cultural distance weighted proportion of location words is not affecting the overall rating of the review. This suggests that cultural difference is not at play when the review is about location. It implies two things: first that location is a significant parameter throughout the world, good locations are sought by everyone, and secondly, tourists appreciate or disapprove of the location characteristics in a similar manner across cultures. A lot of extracted reviews contained positive reviews because they had the convenience of tourist attractions or restaurants being in close proximity. Thus, the managerial takeaway here is that location is an important consideration for people irrespective of which part of the world they come from. In addition, the tangibility of location probably makes it a universal concern. Staff and service is intangible; hence the quality of service is seen by different cultures in different ways.

We plan to add a control variable of 'experience of travel,' which can be extracted from TripAdvisor. We plan to calculate experience by the number of contributions made by a reviewer on the website. We feel that this is a valid control variable since if a traveller is experienced, he or she may not be too affected by uncertainty.

For further research on this paper, our immediate focus is to test the above two research questions in the environment of the control variables that we have identified. We also plan to test two other parameters: 'value' and the 'room' of the hotel. We want to explore if culture has a hand to play in reviews written about these two parameters. We expect that value will be affected by cultural differences on the Indulgence versus Restraint (IVR) parameter, whereas room reviews will get affected by the Individualism versus Collectivism (IDV) parameter. We plan to include control variables such as budget versus star hotels for the value parameter. We expect that by including value, staff and location, we will not only provide findings for the hotel industry, but also, cover important aspects for any firm in the business of providing experiences.

There are limitations to this study. The first is that TripAdvisor does not make it mandatory for a reviewer to provide his or her country. We eliminate such reviews because we cannot identify parameters compulsory for this study. This could have led to systematic selection bias. Secondly, we include only reviews written in English. TripAdvisor does have a provision to write in regional languages, and a study into these languages may benefit the richness of our results further. Third, we use Hofstede's score given to a country, and assume it as the culture of each individual travelling from that particular country.

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