

Do Hotel Responses Matter? A Comprehensive Perspective on Investigating Online Reviews

Wenlong Liu, Nanjing University of Aeronautics and Astronautics, China

Rongrong Ji, Nanjing University of Aeronautics and Astronautics, China

ABSTRACT

This article aims to examine how hotel responses to online reviews influence how potential consumers perceived the helpfulness of the online reviews. Response length and voice were employed to measure the hotel's response quality. 637 reviews with responses were used for empirical analysis. The study identified three different types of response voices: disputed voice, professional voice, and empathetic voice. The results show that both response length and response voice have significant effects on the helpfulness perceived by potential consumers. Moreover, they also have some interaction effects with star ratings, review length, and review image. This study suggests that hotels should strategically respond to both positive and negative online reviews so as to both create a positive interaction atmosphere and resolve consumer complaints. The findings of this study can, to some extent, help manage word of mouth reputations.

KEYWORDS

Hotel's Response, Interaction Effects, Online Review, Perceived Helpfulness, Response Quality, Review Quality, Source Credibility, Word of Mouth

INTRODUCTION

Research Background

Marketing studies have long shown that word of mouth (WOM) can influence consumers' decision-making in purchasing (Kim & Kardes, 1992). With the development of information technology and easy access to the internet, consumers' face-to-face or offline communication has been replaced by multiform electronic-word-of-mouth (eWOM).

According to Hu and Chen (2016), eWOM is defined as "all informal communications directed at consumers through Internet-based technology related to the usage or characteristics of particular goods and service, or their sellers." In shaping consumer behavior and influencing their purchase decision, online reviews are the most influential eWOM (Hu & Chen, 2016). Online review is a type of product information generated by consumers based on their personal experience (Purnawirawan, Pelsmacker, & Dens, 2012). According to a survey named 'Global Trust in Advertising' released by AC Nielsen in

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2015, about 83% respondents say they completely or somewhat trust the recommendations of friends and family while 66% say they trust consumer opinions posted online, which is the third-most-trusted format. Consumers regard the information provided by the merchant as the means to promote their products while believing that online review is deserved to be trusted as it is provided by customers who have consumed the product or service, and it is independent of merchant's marketing action (Lu et al., 2013). This phenomenon is obvious especially in experimental product or service, such as the hospitality industry. It is hard for consumers to not know about the environment, establishment, service or other information indeed or in the round until they arrive at the hotel they booked. In this case, they tend to turn to the online reviews for help. There are amounts of important information contained in online reviews which may reduce the degree of perceived uncertainty between merchants and consumers (Shan, 2016).

The popularity of online reviews makes many researchers pay attention to this subject. Previous studies have focused mainly on two main perspectives, merchants, and consumers. From merchants' perspective, studies center on product sales or revenues (e.g., Duverger, 2013; Cui, Lui, & Guo, 2012; Zhu & Zhang, 2010; Ogut & Tas, 2011; Ghose & Ipeiritos, 2011), product types (e.g., Lee & Shin, 2014; Chua & Banerjee, 2016), brand reputation (Marchiori & Cantoni, 2012) and marketing strategies (e.g., Lu et al., 2013; Nieto, Hernandezmaestro, & Munozgallego, 2014) while from the consumers' perspective, studies focus on consumer's behavior, including information adoption (e.g., Filieri & Mcleay, 2013; Lee & Yang, 2015), purchase intentions (e.g., Jimenez & Mendoza, 2013; Zhao, Wang, & Guo, 2015; Sparks, So, & Bradley, 2011) and decision-making (e.g., Zhang et al., 2014).

Research Questions

Though there are many studies focused on online reviews, few scholars take merchants' response to reviews into account when they study on the online reviews even if the response is very important. Along with positive reviews, there exist some negative, even extremely unfair ones (Sparks, So, & Bradley, 2016). Negative reviews will have a bad and lasting impact on product sales and online bookings (Ye, Gu, & Chen, 2011), as well as their brand reputation (e.g., Lee & Blum, 2015; Proserpio & Zervas, 2017). Effective response approach can both strengthen the relationships with satisfied consumers and provide convincing explanations about service failure (Angelo, Vania, & Francesca, 2016).

Active listening (AL) theory points out that effective listening contains three dimensions of information processing: sensing, processing and responding. Among the three dimensions, only responding can be perceived by consumers. Without the response, consumers will not know about the occurrence of the other two dimensions (Min, Lim, & Magnini, 2015). Therefore, when seeking for the way to manage the e-WOM, it is important for merchants to realize that if, when and how to respond to online reviews, especially the negative ones. Because the response to negative reviews can be regarded as a way of service recovery conducted by merchants. According to Fitzsimmons & Fitzsimmons (2011), Service recovery converts a previously dissatisfied customer into a loyal customer. It is the action a service provider takes in response to service failure. In order to change the dissatisfaction of consumers, merchants should pay attention to online reviews and respond to them. In regard to the problems mentioned by reviews, vendors had better appreciate customers' complaint and apologize to them, then explain why such things occur and guarantee the amendment (Chan & Guillet, 2011; Wei, Miao, & Huang, 2013; Leung, Van, & Buhalis, 2013).

Since there is an increasing number of consumers willing to share their experiences on the website, potential consumers face so many reviews that they may have little time and energy to read and evaluate each one. Websites like Qunar.com and Ctrip.com offer opportunities for site visitors to evaluate the reviews. When browsing the reviews online, if consumers find the content helpful, he/she could click the button 'helpful'. The "helpfulness" vote represents the subject evaluation of visitors or consumers, and the information contained in the review is a utility to them (Huang et al., 2015). Moreover, it can help them establish the perceived trust of the source of the review (Shan,

2016). While consumers face abundant useful information, they could make better decisions. But it raises the questions that which factors of online reviews will affect the perceived helpfulness? Besides the contents and credibility of reviews, which have been widely discussed in prior studies, does merchant's response also has an impact on perceived helpfulness? Whether different ways of responses have different influence?

To answer the above questions, an empirical analysis was conveyed to examine the role of hotel's response to the online reviews. During this process, we not only examine the direct influence of the factors, like response quality, source credibility and review quality, but also assess the possible interaction between review quality and response quality on perceived helpfulness.

This study aims to contribute some theoretical and practical implications for the hospitality field, specifically, reach some implications for the hotelier to manage e-WOM. By making use of text analysis method, we measure hotel's response from both response length and response voice dimensions, which can help people to understand the response quality more comprehensively. The results will tell if hotel's response to online reviews plays a role in consumers' purchase decision, as well, how to respond to online review is proper and effective.

The rest of the paper is conducted as follows. Theories and studies on source credibility, review quality and response quality first will be reviewed. Based on the literature, a set of research hypotheses will be set. The research methodology and empirical model is introduced in the third part of this study. After mining and analyzing data from online reviews, research findings, implications and limitations will be concluded.

Theoretical Background and Hypothesis Development

Online product review is a common type of e-WOM which is determined to be diagnostic if it provides information that is perceived by consumers to be helpful to familiarize, understand, and evaluate the quality and performance of a product (Jiang & Benbasat, 2007). Information seekers can get specific knowledge about a product from every single online review while looking into average ratings and total reviews to know the most consumers' evaluation of the product. This is consistent with the principle of Dual-process theory. The dual-process theory was developed to explain the influence of social factors on individuals' psychological processes. The theory proposes two types of influences on individual judgments: informational and normative influences (Deutsch & Gerard, 1955). Informational influence is based on the information receiver's judgment on the relevant content of a message. For online review, informational influence refers to review content as well as source credibility. By contrast, normative influence refers to the pressure on individuals to conform to the norms of others that are implicit or explicit in the decision of a reference group. It is expected that if two or more consumers share the same perception of a product or service (e.g. hotel), then other consumers will be subsequently influenced by their perceptions (Filiari, 2015). As mentioned above, average ratings and total reviews are typical forms of norms of most consumers. Besides, business organization's response to online review also can be considered as a type of informational influence, since it may affect potential consumers' impressions on product or service and especially on its provider (Sparks, So, & Bradley, 2016). In this study, the above informational and normative factors will be summarized in three dimensions: Source credibility, review quality, and organizational (hotel's) response.

Source Credibility

Source credibility can be interpreted as "the extent to which the reviewers are considered as the credible source or they could deliver objective evaluation" (Goldsmith, Lafferty, & Newell, 2013). While browsing the online review, potential consumers are in face of many marketing information. In that case, even if online reviews occupy an important place in the purchase decision, consumer skepticism toward reviews is relatively high (Shan, 2016). In order to reduce the skepticism, review websites provide the information of reviewers like a nickname, photo, total reviews, total images

and total helpfulness votes. There is a marked sentence on the Ctrip.com: The reviews come from a real customer!

Source credibility is a widely studied factor in the online review. According to Filieri (2015), source credibility positively and significantly affects information diagnosticity. Zhang et al. (2014) found that source credibility positively influences behavioral intention. Source credibility is a multi-dimensional concept, which contains two well-established dimensions, expertise, and trustworthiness (Shan, 2016; Jooyoung, Sangwon, & Mina, 2018). This study reviews source credibility from the following two dimensions.

Identity Disclosure

Online identity is an actively constructed presentation of oneself. Even if many people regard online identity as individual privacy, information of providers can contribute saliently to the perception of the message (Liu & Park, 2015). Previous studies have shown the significance of identity disclosure in online reviews. Liu and Park (2015) revealed that a reviewer's identity disclosure positively affects the perceived usefulness of the reviews. Fogg et al. (2001) demonstrated that reviewers' names and photos in the online information source have a positive relationship with people's perception of the credibility of websites on the basis of the information processing theory. In other words, a review from the reviewer whose name and photo are seriously made by himself/herself is more credible than a review from the reviewer whose name and photo are randomly allocated by the website.

Reviewer Expertise

Expertise refers to the extent to which a communication source is perceived to make precise assertions according to his or her relevant knowledge and skills (Homer & Kahle, 1990). Consumers take the reviewers with a high level of expertise as a valid source of information, of which the reviews are more influential (Weathers, Swain, & Grover, 2015). Though many websites present some information of the reviewers, like demographics, lifestyles, residences and personal interests and so on, based on which readers can have a better understanding of the reviewers, it is only regarded as privacy disclosure (Shan, 2016). Recently, platforms judge the reviewers' expertise based on their total contribution, such as the total number of reviews, the total number of images and the total number of helpfulness votes (e.g. Ctrip.com & Qunar.com). The more reviews contributed by a reviewer, the more likely he/she will be familiar with the aspects of a good review (Huang et al., 2015). A total number of helpfulness votes refer to the cumulative helpfulness a reviewer got. The more helpfulness votes a reviewer has, the more likely his/her reviews are regarded as useful and trustful (Huang et al., 2015). Nowadays, websites also present the total number of images that a reviewer posted. Contrast with a reviewer who always posts text-only reviews, a reviewer who always shares images of products in reviews will be more not likely suspected as "paid reviewer" or "online ghostwriter".

Review Quality

Park et al. (2007) interpreted the review quality as "the quality of a consumer review from the perspective of information characteristics." Consumers are more likely to evaluate the product in line with the high-quality than low-quality reviews, and more willing to purchase the product with more positive evaluation (Lee & Shin, 2014). Filieri (2015) measured review quality in terms of information depth, factuality, credibility, and relevance, and found that information quality significantly and positively affects perceived information diagnosticity. Lee and Xia (2011) put forward that the quality of convincing reviews contains review valence and argument quality. This study enriches the facets of these dimensions by adopting Lee and Xia's operational approach to review quality.

Review Valence

Most studies use star rating to describe the review valence. Star rating is the grade provided by the reviewer to show their overall evaluation of the product or service. Previous studies about star rating

have two different results. Some found that review valence (star rating) has a positive influence on review helpfulness (Pan, 2011; Sparks & Browning, 2011). The others found that extreme ratings are more helpful compared to indifferent ratings (Forman, Ghose, & Wiesenfeld, 2006; Korfiatis, Garcíabariocanel, & Sanchezalonso, 2012).

While submitting the star rating, some reviewers may habitually grade high/low ratings which have no relation with the reviews they write or submit false ratings for various reasons (Markus, Xianwei, & Rob, 2016). In this study, besides the star rating, we also analyzed the review content and employed a value to the review in accordance with the emotional orientation of the review, such as positive, neutral, and negative emotions in review's text.

Argument Quality

Argument quality could be a significant predictor of consumers' purchase intention (Zhang et al, 2014). This study reviews argument quality from two dimensions: review length and images.

An online review is a form of text-based information, and it can be measured by using the count of words to look at its insights (Huang et al., 2015). The long review includes more detailed information on how and where the product was used (Mudambi & Schuff, 2010). The information usually shows the real situation of the product or service and decrease the uncertainty of product quality. Liu and Park (2015) revealed that reviews with longer text positively affect the perceived usefulness of the reviews. Huang et al. (2015) found that there is a linear relationship between word count and perceived helpfulness. However, when the word count reaches a certain level, its impact on helpfulness will decrease. Images are the beneficial supplemental of the reviews, base on which the readers can know the environment of the hotels visually, and in detail.

Response Quality

With the fierce market competition, more and more hotelier recognized the need to actively communicate with consumers and manage hotels' images on the internet (Levy, Duan, & Boo, 2013). To meet this need, leading travel product websites in China, such as Ctrip.com and Qunar.com, provide hoteliers with the capability to interact with reviewers and respond to their reviews. Responding to online reviews makes the two-way communication possible, especially when consumers' complaints are expressed in the reviews (Gu & Ye, 2014). As mentioned above, negative reviews will bring about negative consequences, no matter financial or nonfinancial (Wei, Miao, & Huang, 2013). More and more hoteliers are setting about managing and responding to online reviews. Hotelier's response can address service-related issues and recover the service failure, thereby increasing the consumer's likelihood of recommending the hotel to others (Barsky & Frame, 2009). A timely response to online complaints cannot only resolve the issue with the complainant and as such put a stop to unnecessary follow-up attacks from other consumers, but also can increase loyalty, satisfaction and positive eWOM (Noort & Willemsen, 2012). Not only for negative reviews, responding to positive reviews help the hotel to strengthen the customer relationship. Since hotels utilize online reviews from two approaches, problem-solving approach, and strategic approach, they respond to the online review in a different pattern (Park & Allen, 2013). Hotels adopting the strategic approach respond to more positive reviews, whereas hotels focusing on the problem-solving approach respond to more negative reviews.

As its importance has been realized, more and more studies begin to focus on the operational level of response to online reviews. Li et al. (2017) demonstrated that the frequency and speed of significantly enhance consumers' engagement as indicated by more reviews, more votes for helpfulness, and higher popularity raking. Lui et al., (2018) identified four managerial response strategies (no response strategy, strategic customer orientation strategy, full response strategy and no strategy) and demonstrated the overall value of the managerial response. However, when comparing the performance of different response strategies, they found that any patterned response strategy is better than not responding at all. Furthermore, in spite of a higher requirement of resource investment when using a full response strategy, the firm's revenue per available room index is significantly lower than hotels

with strategic customer orientation strategy. Hotels must adapt to the competitive online WOM marketing environment and take effective managerial response strategy.

Hypothesis Development on the Effect of Response

Rancourt (2013) assert that the reaction to online reviews can be more telling than the reviews themselves. As it can show consumers how much the hoteliers care. Min et al. (2015) pointed out that responses with an empathy statement or a paraphrasing statement would make consumers feel more satisfied. Sparks et al. (2016) found that a high level of people's response would result in favorable scores in trust and customer concerns. They also demonstrated that the provision of a response from the hotel will result in potential consumer's drawing more positive inferences regarding the hotel's level of trustworthiness and concern for its customers. In their study, they use the voice of a responder to refer to the manner or style in which the hotel's response is communicated. They distinguished two communication styles: "professional" and "conversational human". They pointed out that hotelier's response exhibits a higher level of conversational human voice (versus professional voice) will result in potential consumers drawing more positive inferences regarding the hotel's level of trustworthiness and concern for its customers. In this study, we adopt the voice of response as an aspect of response quality. In contrast with Sparks et al., we distinguish the voice of response into three styles based on text content analysis: disputed type, professional type and empathetic type (shown in Table 2). Besides the voice, in this study, we propose that the response length is also a determinant of response quality. Similar to review length, the response content with more words contains more details about both the service and the hotel's attitude on dealing with consumer's concern. Thus, in this study we will deeply argue the following assumptions:

H1a: Response length has a relationship with consumer's perceived helpfulness of a review.

H1b: Voice of the response has a relationship with consumer's perceived helpfulness of a review.

Interactions Between Reviews Quality and Response Quality

Trust transitivity states that A uses the perceived trust from B to C for reference to establish the indirect trust relationship from A to C. In our case, if potential consumers (A) can feel the empathy and guarantee from the response (B) of hotel (C), they may make a more positive judgment about the trustfulness of the hotel (C) (Feng & Papatla, 2011). Richter & Peixoto (2010) put forward that nodes of electronic commerce social network contain users, buyers, and sellers. It is more possible to build the relationship of trust transitivity when sellers are the common neighbors of buyers. A seller's appreciative response to buyer's positive review will strengthen potential consumer's purchase intention. Seller's apologetic response and explanation to buyer's negative review provides potential consumers the opportunity to know more about the product/service in dual-channel rather than single channel (product review). In other words, the interaction between hotelier's response and consumer's review can help a potential consumer make a better purchase decision.

However, previous studies about hotelier's response to online reviews mostly focus on the stand-alone impact of response, shedding little light on the interaction between online review and hotel's response. Despite that, Xie et al. (2014) verified that the response to online review could moderate the influence of review valence on future hotel performance. They found that response to online review could reduce the effect of unfavorable reviews and enhance the effect of favorable ones. The content of the hotel's response is highly related to the valence and content of a review. Thus, from the hotel's response, potential consumers expect to know the reason for low rating or negative emotions of a review. They can learn about the service quality and trustfulness of a hotel form how the hotel reacts to a long review with complaints. They also can know why the situations occurred in the images that reviewers posted. Based on the above propositions, we assumed that there would be interaction effects between online review's quality and hotel's response quality and set the following hypotheses.

Response length, which is generally measured by the word count of a response, reveals the amount of information delivered in the response (Li et al., 2017). Prior studies have shown that negative reviews are not only more viewed but also perceived as “more useful” (Lee, Rodgers, & Kim, 2009; Rozin & Royzman, 2001). Thus, for low rating or negative emotional review, a response with sufficient explanation will help consumers and potential consumers understand the provided service better. In this study, we assume:

H2a1: The effect of response length on perceived helpfulness is stronger in the low rating reviews than high rating ones.

H2a2: The effect of response length on perceived helpfulness is stronger in the negative emotional orientation reviews than positive ones.

The amount of information influence communication outcomes by reducing uncertainty (Daft & Lengel, 1986). The larger amount of information conveyed by long response discloses the hotel’s characteristics in greater detail. The more specific information supplements that released in the reviews and enable the potential consumers to form a more accurate evaluation of review helpfulness (Li et al., 2017). In other words, in the responses, if hoteliers could answer all questions those consumers listed in long reviews, and explain the reasons for all unexpected situations occurred in the images in detail, it will provide the potential consumers more information about the service. Thus, we assume:

H2a3: The effect of response length on perceived helpfulness is stronger in the presence of higher review length.

H2a4: The effect of response length on perceived helpfulness is stronger in the reviews with images than in those with no images.

If the hotelier could respond to a low rating or negative emotional review in a very polite and regretful voice, it may change the consumers and potential consumers’ impression of the service and build or restore their trust among potential consumers (Sparks et al., 2016). Especially, if the hoteliers seriously recognize the situation and explain how they will redress the situation for future occasions, it will have a more positive impact on customers’ evaluation of the hotel, compared to a disputed voice (Lee & Song, 2010). Thus, we assume:

H2b1: The effect of response voice on perceived helpfulness is stronger in the low rating reviews than high rating ones.

H2b2: The effect of response voice on perceived helpfulness is stronger in the negative emotional orientation reviews than positive ones.

Customers generally express their positive feelings about the experience by either writing online compliments or posting positive images. Providing a personalized response to an altruistic positive review can make customers perceive higher usefulness of the response and more likely agree with the compliment in the review (Lui et al., 2018). Meanwhile, a response strategies related study shows that when customers’ complaints are related to a factor controllable by the firm, an empathic response results in higher customer’s trust toward the firm (Abramova et al., 2015). In other words, if the hotelier responds all complaints that a reviewer posted in a long review or give explanations to what happened in the images in a deeply thoughtful and apologetic voice, it can draw potential consumers regarding that the hotel is very concerned about consumers and their experience. Thus, we assume:

H2b3: The effect of response voice on perceived helpfulness is stronger in the presence of higher review length.

H2b4: The effect of response voice on perceived helpfulness is stronger in the reviews with images than those with no images.

RESEARCH METHODOLOGY

Research Context and Data Processing

For further analysis, this study collected data from Ctrip.com and Qunar.com which are the most famous third-party platforms of travel products in China. The users of the websites can post a comment about the hotel only after he/she booked a room and checked in, which guarantees the source credibility in a way. The websites provide the information of a reviewer with his/her nickname, photo (profile picture), total reviews he/she contributed, total images he/she posted and total helpfulness votes he/she earned. The information of the review contains star-rating, review content, the time he/she checked in and the time he/she posted the review. As for the hotel's response to the online reviews, the content and the time of response posted are provided. All the above information is shown in Figure 1.

The previous study indicated that hotel's response is more effective for budget hotels than high-end hotels those have defined managerial response strategies (Lui et al., 2018). Thus, we selected 26 budget hotels in the ancient town Pingle in Chengdu as samples and collected 1705 records posted before 1st October 2016 using the LoalaSam v0.3.1 software, among which, 914 reviews are with a response. To furthest ensure that the subsequent visitors (users of the website) have been able to view both review and hotel's response, as well control the influence of response speed, we only employed the reviews which induced hotel's response in 24 hours after they were posted. After filtering out the extreme values, 637 reviews remain for final analysis.

Figure 1. An online review with response (Source: Ctrip.com, 2017)



Empirical Model Specification

Based on the literature review and information collected from websites, we conceptualized the variables as Table 1.

Based on the research hypotheses presented above, and with observing the synergy effects of source credibility and review quality, we set up the following models:

Equation 1: Model for examining the effect of response quality:

$$Ph = \beta_0 + \beta_1 \ln(\text{Resl}) + \beta_2 \text{Resv} + \beta_3 \text{Rn} + \beta_4 \text{Rp} + \beta_5 \text{Tr} + \beta_6 \text{Ti} + \beta_7 \text{Th} + \beta_8 \text{Sr} + \beta_9 \text{Eo} + \beta_{10} \ln(\text{RI}) + \beta_{11} \text{Ri} + \beta_{12} \ln(\text{Price}) + \beta_{13} \ln(\text{Age}) + \varepsilon$$

Equation 2: Model for examining the interaction effects:

$$Ph = \beta_0 + \beta_1 \ln(\text{Resl}) + \beta_2 \text{Resv} + \beta_3 \text{Rn} + \beta_4 \text{Rp} + \beta_5 \text{Tr} + \beta_6 \text{Ti} + \beta_7 \text{Th} + \beta_8 \text{Sr} + \beta_9 \text{Eo} + \beta_{10} \ln(\text{RI}) + \beta_{11} \text{Ri} + \beta_{12} \ln(\text{Resl}) * \text{Sr} + \beta_{13} \ln(\text{Resl}) * \text{Eo} + \beta_{14} \ln(\text{Resl}) * \ln(\text{RI}) + \beta_{15} \ln(\text{Resl}) * \text{Ri} + \beta_{16} \text{Resv} * \text{Sr} + \beta_{17} \text{Resv} * \text{Eo} + \beta_{18} \text{Resv} * \ln(\text{RI}) + \beta_{19} \text{Resv} * \text{Ri} + \beta_{20} \ln(\text{Price}) + \beta_{21} \ln(\text{Age}) + \varepsilon$$

As the dependent variable, “Ph” is a user’s perceived helpfulness of a review. The perceived helpfulness label shows total helpfulness votes of a review as shown in Figure 1.

The log value for review length and response length is employed in this study. Since there exist consumers who habitually rate a product or service a lower score but post a positive review, while some others habitually rate a product a higher score but post something negative, a value to the contents in accordance with the emotional tendency is assigned, 1 for negative, 2 for neutral and 3 for positive. 0 represents no image while 1 expresses the presence of images in a review. This study also assigns 1 for reviewers who upload the photos themselves while 0 for those who have no photos or use the photo allocated by the system, meanwhile, 1 for those nicknames randomly allocated by the system, 2 for those nicknames using meaningless numbers or letters, and 3 for those who entitled themselves’ nicknames seriously (Liu & Park, 2015).

As for the voice of response, we analyzed the content of the responses. Two coders read all reviews independently and coded them into the sub-categories extended from the response strategies proposed by Lui et al. (2018). The agreement level between coders was 0.83. The intercoder reliability was 0.91. Both coefficients were above 0.80 benchmarks recommended for content analysis work

Table 1. Statement of variables

Categories		Variables	References
Response quality		Response length (<i>Resl</i>) Voice of response (<i>Resv</i>)	Min et al. (2015) Sparks et al. (2016)
Source credibility	Identity disclosure	Reviewer’s name (<i>Rn</i>) Reviewer’s photo (<i>Rp</i>)	Liu and Park (2015) Fogg et al. (2001)
	Reviewer expertise	Total reviews of the reviewer (<i>Tr</i>) Total images the reviewer posted (<i>Ti</i>) Total helpfulness votes of the reviewer (<i>Th</i>)	Zhang et al. (2014) Huang et al. (2015)
Review quality	Review valence	Star rating of a review (<i>Sr</i>)	Lee and Xia (2011) Pan (2011)
		The emotional orientation of a review content (<i>Eo</i>)	
	Argument quality	Review length (<i>RI</i>)	Mudambi and Schuff (2010)
		Image presence in a review (<i>Ri</i>)	

(Woodruff & Gardial, 1996). Coder disagreements were resolved through discussion and three main categories are identified (shown in Table 2).

For further analysis, according to the emotional orientations of responses from negative to positive, we assign 1 for disputed voice, 2 for professional voice and 3 for empathetic voice.

Price of hotel and age of review are included in the model as control variables.

DATA ANALYSIS AND RESULTS

The descriptive statistics of the sample data are shown in Table 3. As mentioned above, we only employed the reviews which induced the hotel’s response within 24 hours after they were posted and deleted the extreme values. The prices of hotels are between 68 and 506 with an average of 214 RMB. To ensure that enough people have read the reviews, we only retained the reviews posted 155 days ago by 1st October 2016, and arrived at a 756 day’s average age of reviews. According to the mean star rating, 403 reviews are positive ones while the other 234 are negative or neutral ones.

R Programming Language is used to examine if the dependent variables are linearly related to the independent variables as assumed in the models. Figure 2 shows that there is no systematic relationship between the residuals and the predicted (that is, fitted) values, which indicates that the

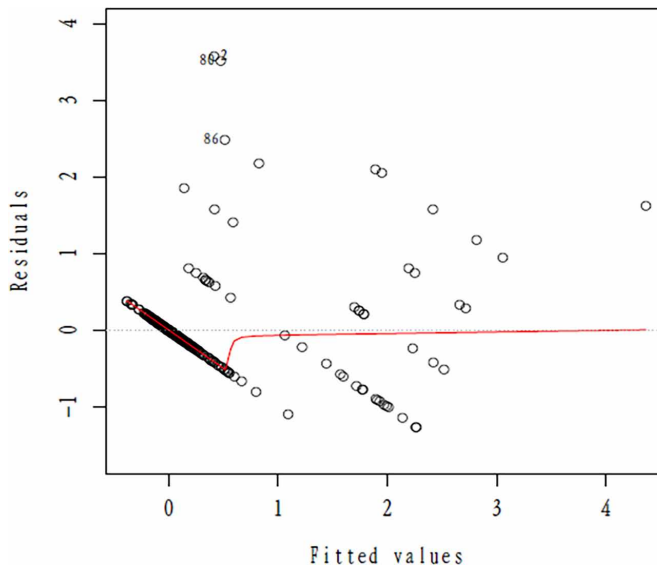
Table 2. Response voice coding scheme

Response Voice	Subcategories	Examples
Disputed voice (N=38 Proportion=5.97%)	Arguing with consumers (N=13)	“You booked a standard room, now you complain the beds were too small, I don’t know how big they should be.” “Wi-fi connection is one of our free supplementary services. I cannot understand why you evaluated our service totally based on it.”
	Making excuses (N=16)	“The noise came from a nearby construction site, we had no idea” “Every hotel raised their prices during the peak season, not only us”
	Questioning the reviewers (N=9)	“What is your desired room decor and service with this low price, we did all that we should do” “Why so low rating? The hygienic condition, location, or service? What’re your criteria”
Professional voice (N=409 Proportion = 64.21%)	Robotic expression of thanks (N=322)	“Thanks for your stay in our hotel, and look forward to seeing you again” “Thanks for your review and wish you happy every day ”
	Mechanical apologies (N=87)	“We are deeply sorry for that, we will never stop improving our service” “We apologize for the inadequate service. We promise you a perfect service for your next visit”
Empathetic voice (N=190 Proportion = 29.83%)	Sincere apologies (N=46)	“We feel so sorry. We could not more agree with you about our chaotic reception during the 10.1 holidays. We are working on improving it now. Hope you would give us another chance to provide you with a perfect experience.” “We sincerely apologize for the uncomfortable experience. The humidity during the rainy season has always been a headache for us. We are planning to solve it by setting some desiccators. Again, we are so sorry about that.”
	Compensation (N=37)	“Sorry, dear customer, there were not enough parking lots due to the store upgrading project and brought you the inconvenience. We apologize for forgetting to inform you in advance. We would like to refund you 30% of the room rate as the compensation and will be back into your account in three workdays.” “We feel very sorry that you could not have a good stay in our hotel because of the fault of the air conditioner. To make it up, we send you a mobile coupon which you can use for the next visit with no expiration dates.”
	Heartfelt thanks and wishes (N=107)	“Thank you for your understanding. There were too many guests checking in right after the thundershower. We could not imagine the results if without your corporation. Thank you so much.” “Hi sir, you were so cool and really impressed us. We are so happy that you had a good stay at our hotel. Your approval and satisfaction are our pursuits forever. Thank you and wish you more wonderful and memorable journeys in your life.”

Table 3. Descriptive statistics

Variables	Mean	Min	Max	Std. Deviation
Reviewer's name	1.378	1	3	0.591
Reviewer's photo	0.102	0	1	0.303
Total reviews of the reviewer	3.430	1	19	3.267
Total images the reviewer posted	0.889	0	17	2.427
Total helpfulness votes of the reviewer	1.298	0	30	3.510
Star rating of a review	4.273	1	5	1.110
The emotional orientation of a review content	2.667	1	3	0.639
Review length	50.242	2	695	69.476
Image presence in a review	0.050	0	1	0.219
Response length	67.647	1	1196	101.274
Voice of response	2.239	1	3	0.549
Perceived helpfulness	0.193	0	6	0.702
Price	213.535	68	506	104.091
Age of review	756.085	155	1682	345.852

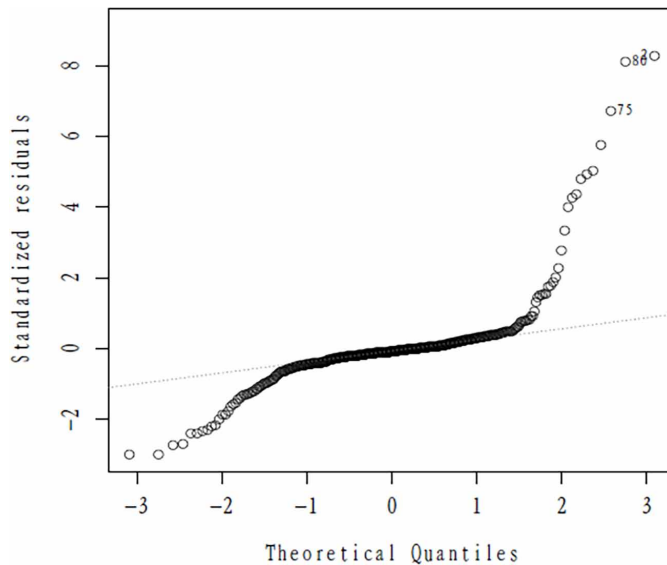
Figure 2. Residuals vs. Fitted values



dependent variables and independent variable are linearly related. The Normal Q-Q plot in Figure 3 shows the distribution of data. Some outliers were deleted according to Figure 2 and Figure 3.

A multiple hierarchical regression analysis is conducted in R-3.4.1 program to examine the effects of response quality, source credibility and review quality on consumer perceived usefulness of the online review. As shown in Table 4, when only the direct effects are considered (Model 1), the length of response shows a significant effect on perceived helpfulness, while the voice of the response does not. The Model 2 reports both the direct and the interaction effects. The R square of Model 2 is larger

Figure 3. Normal Q-Q



than it in Model 1, while the F change is also significant. Thus Model 2 is more comprehensive as well as persuasive. Further discussion will be carried out based on Model 2.

According to Table 4, when including the interactions between review quality and response quality into the model (Model 2), both response length and response voice have significant effects on perceived helpfulness (H1a and H1b are supported). Furthermore, the interactions between response length and star rating, response length and review length, response length and review images, voice of response and star rating, voice of response and review length, as well as voice of response and review images are also significant, while others are not (H2a1, H2a3, H2a4, H2b1, H2b3, and H2b4 are supported). Although the roles of source credibility and review quality related variables have been constantly examined in previous studies, we included them in the model for synergy effects consideration. The results show that the reviewer's name and photo do not appear to have a significant influence on perceived helpfulness in our study. As the measurements of reviewer expertise, the number of total images and the total helpfulness votes of a reviewer is showing significant effects on the perceived helpfulness of a review, while the number of total reviews' effect is not significant. Review length and emotional orientation of a review are more influential than review valence. The interaction effects between review images and response quality provide more valuable information than review images themselves.

As control variables, the price and the age of review are not showing significant effects.

DISCUSSION

This study proposed response length and the voice of response as the measurements of response quality. The results indicate that both of them have a significant positive relationship with consumer's perceived helpfulness of a review. This is easy to understand: the long responses contain more information than the shorter ones. This information describes the product from a seller's perspective, or explains for unsatisfactory service that consumers experienced, or manages to execute service recovery. It can help potential consumers understand the product/service and the service provider more comprehensively. As for the voice of response, our results are somehow consistent with the perspective of Lui et al. (2018). Lui et al. (2018) stated that an accommodative response has a more positive impact on customers' evaluation of the company. Especially, for negative reviews, unsatisfied

Table 4. Effects of online review and hotel's response on perceived usefulness

Dimensions	Variables	Model1	Model2
Response Quality	Response length	0.080***	0.597***
	Voice of response	-0.043	0.377***
Interactions	Resl*Sr		-0.593**
	Resl*Eo		-0.342
	Resl*RI		0.402***
	Resl*Ri		0.461***
	Resv*Sr		0.469***
	Resv*Eo		-0.160
	Resv*RI		-0.927***
	Resv*Ri		0.424***
Identity disclosure	Reviewer's name	0.011	0.027
	Reviewer's photo	-0.040	-0.008
Reviewer expertise	Total reviews of the reviewer	-0.021	0.044
	Total images the reviewer posted	0.218***	0.171***
	Total helpfulness votes of the reviewer	0.158***	0.149***
Review valence	Star rating of a review	-0.057	-0.097
	The emotional orientation of a review content	0.028	0.508**
Argument quality	Review length	0.064**	0.439***
	Image presence in a review	0.534***	-0.367
Control variables	Price	-0.072**	-0.025
	Age of review	0.005	0.004
R		0.780	0.837
R2		0.609	0.701
Adjusted R2		0.601	0.690
F value		74.677***	68.557***
F value change			6.120***

p<0.05, *p<0.01

customers expect accommodative responses rather than defensive responses. In our study, we identified three response voices which involve the responses to both negative and positive reviews according to the emotional orientations of responses. Empathetic voice expresses the hotel's understanding and being aware of the feelings and experience of reviewers and the effort that the hotel made to pacify or appreciate the consumers. This makes potential consumers generate the sense of hotel's sincerity.

The significant negative interaction between response length and star rating corresponds to our hypothesis. The effect of response length on perceived helpfulness is stronger in the low rating reviews than high rating ones. As mentioned above previous studies have shown that negative reviews are perceived as "more useful", thus, responding to negative reviews in sufficient enough words will answer the questions in the mind of potential consumers and help them understand the service better. Generally, the content of the response is closely related to the content of reviews, thus, it is not difficult to understand the positive interaction between response length and review length.

Likewise, long response to the review with images is also informative and has the reference value for potential consumers.

We assumed that the effect of response voice on perceived helpfulness is stronger in the low rating reviews than high rating ones, but the positive interaction between response voice and star rating is opposite to our hypothesis. However, it echoes the perspective of Dickinger and Lalicic. Dickinger and Lalicic (2014) pointed out that managerial response to positive reviews publicly recognizes consumers' supportive comments and creates a positive emotion in the hotel's online interactions with consumers. The interaction between response voice and review length is negative which is also opposed to our hypothesis. Through reexamining the data, we found there are only 74 negative reviews in 274 long reviews (word count ≥ 50 , which is the mean of review length), while the other 200 reviews are all positive ones which sharing consumers' satisfying experiences. In the responses to the 200 positive reviews, 118 responses just thanked the reviewers and expressed the hope for future revisits in a professional voice. These kinds of compliments and professional responses are meaningless and lack of information for potential consumers. Most people would not like to spend much time on too long reviews, especially on long positive ones (Lee, Rodgers, & Kim, 2009; Rozin & Royzman, 2001). This result also echoed the finding of Lee and Blum (2015). They pointed out that most hotel managers respond more often to positive reviews than negative ones. And, even when they answer the positive ones, most of them just thank the reviewer and express their hope for a revisit without appreciating reviewers' specific comments. On the contrast, the interaction between response voice and images in the review is significantly positive. This result verified our assumption: thoughtful and empathetic responses to what shown in the images (no matter positive or negative) will draw potential consumers regarding that the hotel is very concerned about consumers' experience and also can deliver more information about the service.

Along with the response quality, the roles of source credibility and review quality are reexamined. The results of this study show that the reviewer's name and photo have no significant effect on consumers' perceived helpfulness. This is somehow different from prior studies. Liu and Park (2015) found the reviewers name and photo have a certain impact on consumers' perceived usefulness of a review. But, in their study, 95.4% of reviewers have "real" names with 71.3% of them uploaded their real photos as profile pictures. On the contrast, in our study, 66% of the reviewers' nicknames are randomly allocated by the system or using meaningless numbers or letters with only 29.6% of them uploaded their real photos as profile pictures. It reflects that most people do not use real information (like a real photo) in their profile for privacy reason nowadays, which brings about that readers can know little about the identity of the reviewer in fact. This difference of samples might be one of the causes of different results. Besides, the more important implication is, compared with identity disclosure the reviewer's expertise provides a more persuasive evidence for the potential consumer to make a judgment about reviewers and their reviews according to the results. Except for the total reviews of the reviewer, the other two measurements of expertise, total images the reviewer posted and total helpfulness votes the reviewer got, are showing significant effects on perceived helpfulness. This result is consistent with prior studies. Huang et al. (2015) also found that reviewer experience which measured by the total number of reviews contributed by a reviewer is not a significant predictor for review helpfulness, while reviewer cumulative helpfulness which measured by the total number of "helpful" votes a reviewer got has a significant effect on perceived helpfulness. Besides, total images a reviewer posted, proposed by us in this study, is a significant predictor of review helpfulness, as it reflects if a reviewer writes product reviews with always presenting real and objective evidence. The above results mean that a product review will be more helpful either when he/she got more cumulative helpful votes ever, or when he/she always presents reasoned and visible material to support their opinions.

The results of data analysis show that, as two dimensions of review quality, the length and emotional orientation play a more important role in the process of diagnosing information for potential consumers than star rating does. This is different from most prior studies (e.g., Huang et al., 2015;

Filieri & Mcleay, 2013). They found review rating somehow influences the review's helpfulness. However, merchants sometimes enter into agreements with raters for incentivized ratings which may result in raters' unfair higher ratings in exchange for discounted products or service (Cai & Zhu, 2016). This makes consumers take the rating just as a supporting factor rather than a crucial factor. Since many online reviews include a number of words and maybe also images, potential consumers are more likely to perceive the helpfulness of the review contents rather than ratings or just positive or negative emotions (Liu & Park, 2015). In other words, the words and images of reviews can provide potential consumers with more detailed information about the product and help them make a more accurate evaluation and decision.

CONCLUSION, IMPLICATIONS, AND LIMITATIONS

This study aims to enrich the limited research on the efficacy of hotel's response to the online reviews. The concept of response quality is proposed which complements recent researches by Min et al. (2015) and Sparks et al. (2016). Response length and voice, as measures of response quality, are introduced and verified to enhance potential consumer's perceived helpfulness of a review. They can provide consumers with more information about service, as well, to avoid consumers adopting unilateral perspective. Based on the research of Sparks et al. (2016), this study specified three types of response voice and confirmed its interaction effects with review argument quality. The voice of response reflects the hotel's attitude toward consumers and their business philosophy. In the hierarchical regression model, we also reexamined the effects of source credibility and review quality on perceived helpfulness. We found that argument quality of a review which includes words and images generally describes the service that consumer has experienced. It is much more informative than star rating. As for the source credibility, total cumulative helpfulness votes of a reviewer, as the most important indicator of expertise, can enhance the helpfulness of a review. These findings lead to the following theoretical and managerial implications.

Theoretical Implications

Kim and Kardes (1992) put forward consumer inferences theory in their study. This theory proposes a systematic framework through which to understand the inferences potential consumers draw when only partial information is available. Service, as an experience-based product, faces the difficulty to satisfy all consumers. As a main type of e-WOM, online reviews of previous consumers could be the "partial information", and may influence potential consumers' inference about the service. In this case, to complement the partial information or decrease the bias of partial information, attentions have been paid to another type of information: hotelier's response. Since hotelier's response is aroused by the online reviews, which means "no review, no response", this study thus proposes a concept of "whole review" which includes both consumer's review and manager's response. This concept will help people understand the knowledge of online review and e-WOM more comprehensively. It also can make up for the deficiency of previous studies about the online reviews. Moreover, we proposed two measures of response: response length and response voice. Despite the limited theoretical implications of this study, it will be the reference for further research for others.

Practical Implications

Given the market getting more and more competitive, service providers should consider how to manage the e-WOM. Since a long review with images carries on too much information, hoteliers should judge if it is positive or negative. If it is positive, a simple response with a few words of thanks will be more appropriate than a long response, since potential consumers would not spend much time on positive reviews, especially on long ones. Because, the negative reviews can point out the problems that they are concerned, and will be more useful for them to make a decision. Thus, the hotel's sufficient explanation for criticisms and expression of their concern about consumers' complaints

will make a change to potential consumers' evaluation of the service. In addition to emphasizing the importance of response to negative reviews, another practical implication emerging from this study is that when responding to consumers' complaints, hoteliers should adopt an empathetic voice with a friendly conversational tone rather than a disputed or organizational voice, because potential consumers will learn not only the reasons for dissatisfaction but also the attitude that hoteliers deal with consumers' complaints. This calls for a need for well-trained online after-sales service staff. In other words, hoteliers or managers need to learn how to respond to online review wisely. As this study also confirmed the role of reviewer's expertise, specifically, the reviewer's cumulative images and helpfulness votes, e-WOM managers should stick some influential reviewers' positive as well as informative reviews at the top of review module.

Limitations

Despite the above implications, this study can be strengthened in several ways in future research. Min et al. (2015) pointed out it is no difference between a response within 24 hours and a response that came after one month or two weeks, whereas Sparks et al. (2016) and Li et al. (2017) verified the importance of response speed. To control the influence of response speed, we selected 637 reviews which are responded in 24 hours from total 1705 reviews. The relatively small size of data may weaken the accuracy of the results. Second, we measure the dependent variable by collecting the number of helpfulness votes which means the consumers we studied are limited to who read and voted for the review, while excluded those read but did not vote for the review. Thus, it is necessary to conduct a supplementary survey to investigate all potential consumers' perceptions of response. Third, when processing the content of a review or response, we assigned it a value to represent its emotion tendency. Textual analysis depending on manual identification may involve subjective judgments (Ye & Li, 2017). In future work, we would like to process the text through emotion dictionary or machine learning to reach a more accurate judgment of content. In addition, the pairwise comparison technique is widely used to tackle the subjective and objective judgments about qualitative and quantitative criteria in multi-criteria decision making (Kou et al., 2016; Wu & Kou, 2016). Since there are both quantitative (e.g., review rating) and qualitative (e.g., response voice) factors in our study, our next attempt is to develop a pairwise comparison matrix (PCM) to identify the relative importance among the factors.

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Wenlong Liu is an assistant professor in the College of Economics and Management, Nanjing University of Aeronautics and Astronautics, China. He earned a PhD degree from Gyeongsang National University, South Korea. His research interests include consumer behavior, e-commerce and service marketing. His works have been published in several journals indexed by Korean Citation Index (KCI) and SSCI.

Rongrong Ji is a graduate student in Nanjing University of Aeronautics and Astronautics. Her research interests are e-commerce, consumer behavior and information management.