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The Influence of Consumers' Information Search Behavior on Purchase Decisions for Experience Goods: Empirical Evidence from Hotel Industry

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Abstract: The explosive development of Web 2.0 and online word-of-mouth (WOM) communications have facilitated the transaction of experience goods from offline to online. However, most of the online WOM merely consist of words which make it hard to convey the subtle feelings and experiences of consuming such products or services. In order to form more precise perceptions and reduce uncertainty, search engines are commonly used by individuals to reach more concrete product-related information. Prior studies proposed that consumers' online information search behavior reflects their specific intentions and correlates with further economic activities. However, there is still a deficiency of empirical evidence that identifies the possible impacts of consumers' information search behavior on purchasing decisions for experience goods. In cognition of this research gap, this paper conduct an empirical analysis to investigate the relationship between consumers' hotel information search behavior on Google.com and hotel booking data on Expedia.com. The results show that larger volume of search queries for one hotel is associated with higher room booking rate from the online travel agent. Furthermore, the interaction between information search and hotel review indicates that information search on Google weakens the reliance of online WOM on purchasing decision. The results are expected to provide useful insights on how consumers search, utilize information and make purchase decisions in the online market.

Keywords: Internet, experience goods, search engine, consumer behavior, online review

1. INTRODUCTION

The explosive development of Web 2.0 has profoundly reshaped the business model of experience goods market (e.g. hotels, restaurants and spas). Practitioners operate the internet as an communication platform to release product information, attracting potential customers to buy vouchers online and enjoy them offline. This online-to-offline (O2O) business model has become an effective way to connect supply and demand in daily life. However, the intrinsic feature of such products (unobservable characteristics before consumption) which makes it hard to infer the quality only by information provided by sellers prove to be a major handicap for the business^[1,2]. As online word-of-mouth (WOM) communications became more and more prosperous in online communities, product reviews which consist of comments and experiences about the products or services by former consumers turned into a reliable source to acquire product information by new customers^[3,4]. Substantial studies have confirmed the significant effect of online reviews in influencing the demand for experience goods^[5,6,7].

Despite the role of providing relatively credible information source of product quality, most of the online WOM merely consist of words which make it hard to form more concrete perceptions about the product. As the majority of experience goods fall into the catalogue of hedonistic products the feature of which lie in the fulfillment of enjoyment or happiness during consumption process. It's inadequate to convey the feelings and experiences of consuming such goods or services only by textual information. In practice, dealers usually provide free material with multiple medias (e.g. music demos, film trailers and sample books) to enhance

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awareness and boost sales. Consumers also got used to searching for product-related information (e.g. images, videos and descriptions) before making purchasing decisions. In fact, search engines (e.g. Google.com and Baidu.com) have become crucial tools for individuals to reach the content they need more efficiently. Zillow.com conducted a survey to study American consumers' search behavior before purchases and found that, the average amount of time for American consumers spent researching for a new purchase was 40 hours for a new home., 10 hours for a car, 5 hours for a vacation, 4 hours for a computer, and 2 hours for a television set ^[8].

Although several studies have been conducted to investigate individuals' practice utilizing search engines for decision making, there is still a deficiency of empirical evidence that identifies the possible impacts of information search on the purchasing decisions for experience goods. To the best of our knowledge, only a few studies have involved the empirical data from search engines to examine the relationship between consumers' information search behavior and purchasing intentions for experience goods. Pan et al. verified that the hotel search data on Google can be used as an indicator of purchase intentions and increase the accuracy of forecasting potential tourists' demand for hotel rooms in tourist destinations. The authors incorporated five travel-related queries to a tourist destination in a model to predict hotel room demand in Charleston of the United States and showed that search engine volume data make a significant contribution to reduce the mean absolute percentage error of the result ^[9]. As search engine marketing is becoming a crucial channel for practitioners to build direct conversations with potential guests, it is critical to understand consumers' search behavior for product information and how these actions influence their final decisions. Different from Pan's work which studied the consumers' purchasing intentions, this paper built a linear-regression model by combining the information search data from Google Trends website and sales data for experience goods (hotel booking record from Expedia.com) and studied the influence of search behavior on consumers' real purchase decisions. Further, we investigated the potential effect of information search on reducing the influential power between online WOM and product demand. Using the hotel room as the product sample, we find that more volume of search queries for hotel name is associated with higher room booking rate of the same hotel from the online travel agent. Furthermore, information search on Google weakens the reliance of online WOM on purchasing decision, which verifies travelers' relying on the information collected through search engines as an important determinant in decision-making. The results are expected to provide useful insights on how consumers search, utilize information and make purchase decisions in the online market.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

According to the classification by Nelson, experience goods are products featured with multiple unobservable characteristics before consumption ^[1]. Most of the experience goods also belong to hedonistic products the feature of which lie in the fulfillment of enjoyment or happiness during consumption process. For example, hotel accommodation which is one of the crucial determinants to consumers' overall trip experience consists of a series of facility and service standards. However, due to the enormous of information and alternatives choice available online, finding the right hotel is always a complex and time-consuming task in vacation planning. To enhance the efficiency of planning process, travelers commonly resort to search engines for hotel information collection and make decisions accordingly. It is widely supported by the literature that consumers' online information search behavior reflects their specific intentions and correlated with further economic activities. Da et al. proposed that aggregate search frequency in Google as the direct measure of investor attention in stock market and tested the relation between investor attention and asset prices. They found that an increase in SVI for Russell 3000 stocks predicts higher stock prices in the next two weeks and the large first-day return performance for a sample of IPO stocks ^[10]. Using the search volume data of 45 flu-related keywords on Google.com, Ginsberg et al. built a forecasting model to predict the influenza outbreaks and found

that their model can detect flu outbreaks 1 to 2 weeks before Center for Disease Control (CDC) reports ^[11]. Regarding tourism research, Choi and Varian provided empirical evidence and tested that volume of search query on Google can be used as an indicator of visiting intention for tourism destinations. They incorporated Google search volume data for the keyword “Hong Kong” from nine different countries to predict visitor arrivals statistics to Hong Kong. The result shows Google searches on 'Hong Kong' are positively related to visitors from the particular country ^[12]. Following the above studies, we assume: if a consumer search for information about experience goods on Google.com, he is undoubtedly paying attention to it and probably decide to make the purchasing decision accordingly. In other words,

H1: The volume of query for experience goods on Google.com is positively related to the product demand.

Online word-of-mouth (WOM) communications which are more and more prosperous in online communities provide useful references for people to acquire quality information before consumption. It is widely supported by prior studies that the effect of online reviews in influencing the sales of experience goods. Duan et al. found that the volume of WOM has a positive impact on films' box office performance ^[6]. Using the restaurant data from the city of Seattle, Luca investigated the relationship between online reputation and restaurant revenue and found that rating of consumer reviews significantly affect the demand ^[7]. Ye et al. found that the valence of traveler reviews had a significant impact on online sales of hotel rooms: 10 percent increase in online ratings is correlated with five percent boost of online bookings ^[13]. In addition to the main effect of online WOM on the demand of experiences goods, several studies identified other contextual factors that moderate the relationship between the two ^[14]. Using a data set on sales and consumer reviews of video games, Zhu and Zhang found that online consumer reviews have greater influence on less popular games and games whose players have greater Internet experience ^[15]. In tourism market, tourists tactfully combine various available information sources to form their final decisions when making vacation planning ^[16]. Compared with consumer reviews mostly consist of word descriptions, new media (e.g. photos and videos) which are easy to be accessed through online search engines provide more concrete visions and details about different aspects of the product characters. Cue consistency theory suggested that consumer reliance on one cue weakens when other extrinsic cues are available ^[17]. Through an experimental study, Yadav et al. found that compared with texts, videos are associated with higher levels of engagement with the characters and recall of particular information and more potent in the emotional feelings ^[18]. When consumers are exposed to more intuitive information collected through search engines, their reliance on online WOM will be weakened. In other words, more search queries which bring in more external information may reduce the influential power of WOM. Thus, we hypothesize:

H2: Higher volume of search queries on Google.com will lessen the effect of consumer review on product sales.

3. DATA

The dataset consists of 28 hotels which has more than 500 rooms locates on the Strip Street of Las Vegas, U.S. We chose the hotels in Las Vegas as our data source because of the following reasons. First, Google.com only exhibit the history of search queries for keywords that exceed some certain amount. Las Vegas is one of the major travel destinations in the U.S., attracting tourists from all over the world. The hotels on the Las Vegas Strip Street are well known among the travelers, which make search queries for these hotels on Google significant enough to be recorded by Google Trend. Second, location is an important determinant to influence travelers' final choice when seeking the hotel for a trip plan. The hotels in this research locate next to each other alongside the center of the city, which may reduce the potential bias caused by different hotel locations. As Expedia.com shows the aggregated booking number of each hotel within the past 48 hours, we captured the

hotel data include hotel name, average room price, average rating of consumers' review and number of bookings every other day from December 09, 2012 to January 06, 2013. The search queries for each hotel name was collected from GoogleTrends.com. Google Trends present the aggregate search frequency of a particular keyword entered in Google.com relative to the total search volume in different languages globally. The result is shown in the graph format which horizontal axis represents time and the vertical plots how often a term is searched for relative to the total number of searches. It also allows users to compare the volume of searches between two or more terms and refine the main graph by region and time period. To avoid the potential bias caused by the mismatch of search queries, we set the keyword for hotel search with "hotel name + Vegas" and transfer the vertical figure into the relative number for each hotel. Finally, we combined the hotel data from Expedia with search data from Google Trend to form our dataset with a panel structure which consists of 28 hotels over 15 time periods. Table 1 shows the descriptive statistics of the data.

Table 1. Descriptive Statistics

Variables	Mean	Std. Deviation	Min	Max
Original Price	746.2148	426.6589	170	1853
Price	601.8173	383.0939	161	1550
Rating	4.1309	0.4152	3.2	4.775
Hotel Search	32.0282	18.8355	0	90
Booking	258.1975	180.2624	23	1733

4. MODEL

To examine the influence of information search, online WOM and their interplay on hotel booking decision, we built the following model and assume that the total room number of booking for hotel i during the period t can be modeled as:

$$HotelBooking_{it} = \alpha + \mu_i + \beta_1 OriginalPrice_{it} + \beta_2 Price_{it} + \beta_3 Rating_{it} + \beta_4 HotelSearch_{it} + \beta_5 Rating_{it} \times HotelSearch_{it} + \varepsilon_{it}$$

In the model, the dependent variable $HotelBooking_{it}$ represents the number of travelers who book the room from hotel i at time t . On the right-hand side, μ_i represents the fixed effect for hotel i . $OriginalPrice_{it}$ is the listed room price without any price discounts for hotel i at time t . We note that, to attract more travelers, most of hotels adjust their pricing strategies by offering discounts frequently. $Price_{it}$ represents the actual price that is charged for the room per night of hotel i at time t . $Rating_{it}$ shows the average consumer rating using a one to five star rating system for hotel i at time t . $HotelSearch_{it}$ represents the relative search volume on Google for hotel i at time t . $Rating_{it} \times HotelSearch_{it}$ tests the moderating effect of travelers search behavior on consumer ratings which reflect their interplay in driving hotel demands. The goal of this analysis is to identify the coefficients of β_4 and β_5 .

5. ANALYSIS AND RESULTS

Table 2 displays the main results of the analysis. The coefficient between $HotelSearch_{it}$ and $HotelBooking_{it}$ is 34.42 and significant at 0.001% level. Thus, H1 is supported, which confirm that travelers' hotel information search behavior reflects their booking intentions. This result is in accord with the findings of previous studies that search engines play an important role in daily economic activities. The interaction between $HotelSearch_{it}$ and $Rating_{it}$ is negative and significant, suggesting that the effect of review rating decrease when travelers are exposed to more information collected through search engines. This result supports our H2, which

implies that, consumers wisely combine various available information sources to form their final decisions. The information collected through search engines becomes crucial determinants for individuals' decision-making.

Table 2. Regression Results

Variables	Coefficient	Std. Error	T-Statistic	Prob.
Constant	-967.01	583.3393	-1.6577	0.0982*
Original Price	0.2308	0.0965	2.3926	0.0172**
Price	-0.3734	0.1040	-3.5904	0.0004***
Rating	285.3920	137.6885	2.0727	0.0389**
Hotel Search	34.4221	8.2065	4.1945	0.0000***
Rating×Hotel Search	-7.5443	1.9545	-3.8600	0.0001***
R-squared	0.7024		Adjusted R-squared	0.6776
F-statistic	28.2480		Prob (F-statistic)	0.0000***

*, **,*** significance level of 0.1, 0.05, and 0.01, respectively.

6. CONCLUSIONS

This research makes some important contributions to the literature of consumers' information search behavior and the effect of online WOM. Firstly, our research – to the best of our knowledge – is the first empirical study to investigate the influence of consumers' information search behavior on purchasing decision of experience goods. The result highlight individuals' reliance on the information collected through search engines as important determinant in decision-making, which may arise the attention for marketing practitioners on the importance of embracing and utilizing new technology online (e.g. search engine optimization) to enhance the exposure opportunity to customers and strengthen their competitiveness. Secondly, this research identified consumers' search behavior as a new factor that moderates the relationship between online WOM on the demand of experiences goods. The reliance of consumer review on purchasing decision is moderated by the information collected from search engine. Since the advent of online consumer review, online WOM has been testified as a valuable mechanism to provide trustful information and to reduce uncertainty for inexperienced consumer. However, comparing with new medias (e.g. photos and videos) which provide more concrete details about the products, most of consumer reviews merely consist of word descriptions which makes them less convincing. To enhance the effectiveness of online WOM, practitioner may consider to enrich the content of consumer review by encouraging consumers to provide more photos and videos on the platform.

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