

Applying FAHP to Determine the Factors Influencing the Service Quality of Online Group Buying in Taiwan

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ABSTRACT

This study primarily aims to apply FAHP method in identifying the service quality Taiwanese shoppers seek in online group buying. Specifically, this study intends to determine which factors influence the service quality of online group buying. The sample comprises 21 respondents who participated in a survey designed to weigh seven different factors service quality through FAHP. Findings demonstrate that the order of factors by weight is efficiency > contact > compensation > fulfillment > responsiveness > system availability > privacy. Efficiency, contact, and compensation are the key factors affecting the service quality of online group buying in Taiwan. This study assists Taiwanese practitioners to develop better market strategy by explaining the factors influencing online group buying of Taiwanese shoppers.

Keywords FAHP, online group buying, service quality, Taiwan.

1. INTRODUCTION

Online group buying is a new form of online shopping that has emerged recently. However, it comes with purchasing risks that can affect consumer welfare significantly (Chui et al., 2014). To shop through online group buying, consumers should be able to utilize the Internet (Jeng and Tseng, 2018). Internet commerce has changed the means of marketing and selling. The interest of people in online shopping has prompted many companies to enter cyberspace (Elms et al., 2016). The popularity of cyberspace knowledge has narrowed the gap in socialization. In addition, social media has become an emerging and influential social agent with the Internet (Thaichon, 2017) functioning as a marketing tool. Product and e-channel consumer trust influence online purchasing intentions (Pappas, 2016). The Internet facilitates transactions between retailers and consumers. Nonetheless, scant studies have focused on the relationships between post-purchase activities (shipping and return services) and customer behavior and attitude (Jain et al., 2017).

E-tailing offers an experience different from that provided by brick-and-mortar stores (Elms et al., 2016). Before, consumers' habitual consumption behavior mostly entails shopping in traditional brick-and-mortar stores. Recently, the Internet has been viewed as another gateway to business transactions. This idea has led many companies

to take advantage of the Internet to develop their business. Perceived value and risk are significantly related to purchase intention. In particular, service and perceived value have a significant positive relationship, whereas service and perceived risk have a significant negative relationship. Serviceability to improve pathway characteristics raises perceived value and lowers perceived risk, subsequently generating consumer behavior (Liaw, 2011).

Marketing exchanges through online group buying offer companies the opportunity to raise product brand awareness. Retailers immediately gain a large pool of customers through online group buying and expand the customer base to sell other products. Hence, online group buying is helpful to improve cash flow (Lim, 2017). Online group buying is one of the emerging shopping models practiced by web users. A massive number of shoppers convene to seek popular and cheap products via the group buying platform. However, differences in service quality between site users and managers can lead to varying service quality, and overall service quality is positively correlated with reuse intentions (Liu et al., 2010).

Although the overall service quality of a network induces a willingness to participate in online group buying, few studies have analyzed the various factors of service quality. Therefore, this study investigates online group buying from the perspective of service quality. The main aim is to apply FAHP method in identifying the service quality that Taiwanese shoppers seek in online group buying.

2. LITERATURE REVIEW

Scholars have put forward various definitions of group buying. Group buying usually occurs in offices and homes. Aggregate consumer demand refers to the power of every member to get the maximum purchase amount. When bargaining power is increased, consumers can achieve better purchase conditions (Anand and Aron, 2003). Online group buying is the behavior of consumers to gather online to shop as a group. When consumers have large shopping needs, they get bargaining space, which in turn leads to lower commodity prices. Through online group shopping mechanism, sellers can reduce the cost of goods and buyers can purchase the goods at a lower price. Buyers and sellers believe that they can each obtain more benefits through the group-buying model (Chang et al., 2010). Online group buying also pertains to a group of people breaking the traditional geographical division and environmental restrictions. Given that these shoppers have a common demand for a certain service or commodity, they come together to purchase goods through the Internet platform (Wu and Chen, 2011).

In this study, online group buying defined as the consumer behavior in which customers cluster the demand and obtain the preferential price through a website platform. The pressure on suppliers to reduce inventory costs is due to the demand cluster, which is priced.

Consumers with limited order sizes can use the group buying mechanism to aggregate the demand for orders and enjoy the benefits of wholesale transactions (Sharif, 2013). The purchasing power of a single consumer is limited, so consumers need to unite and strengthen their position against the seller to obtain volume discounts (Selimovic and Pestek, 2014). Practitioners should increase the level of information disclosure in online group buying to enhance potential intention of consumer shopping (Tseng and Wu, 2017). High repurchase intentions are affected by the quality of the

website and the trust between suppliers and sellers (Visita, 2015). Group buying is an effective promotional tool for retailers in expanding their customer base (Cheung et al., 2016).

As time goes by, a growing number of participants have engaged in the online shopping market. To gain a larger market share in a competitive market, marketers must possess an advantage in service quality (Nematia et al., 2012). Paying attention to customer needs is needed to provide the quality of website services that customers want (Ma and Chiang, 2011). The quality of website service is defined by consumers' perceptions of information content and operational processes. For example, consumers may not trust the credit card transaction in the network environment, so the trust of online users on the website environment should be strengthened (Chen and Lee, 2012). Trust issues have been raised and become a challenging problem. Based on Usability Theory of website design field, effectively addressing the trust of consumers enhances their willingness to continue to use the website (Peng and Guo, 2012). The seven factors in E-SERVQUAL are efficiency, system availability, fulfillment, privacy, responsiveness, compensation, and contact (Parasuraman et al., 2005). We refer to the seven factors in evaluating the quality of group purchase service. The results of this research provide information that practitioners can use to strengthen the service of online group buying.

3. METHODOLOGY

Survey design

The first part describes the seven factors as follows:

Efficiency: easy to visit and quick to use

System Availability: correctly working website technology

Fulfillment: commitment to the delivery of orders and the status of the goods

Privacy: does not disclose customer information to ensure information security

Responsiveness: effectively deals with problems and promptly replies

Compensation: degree of compensation to customers when problems arise

Contact: variety of communication channels

The second part explains how to complete the form that is adopted to judge the relative importance of the factors. The X factor is compared with the Y factor. When the relative importance of the two is strongly biased toward the X factor, that is, the importance of the X factor is greater than the Y factor, the factor is "quite important," and the score is approximately "7 points." When compared with the Z factor, the Z factor is slightly more important than the Y factor. Therefore, the factor is "slightly important," and the score is only "2 points."

The third part contains three questions related to the personal background information of the respondents. The items include gender, number of participants in online group buying, and education level.

Gender: Male or Female

Number of participants in online group buying: 1-3, 4-6, and 7-9

Education level: High School, Bachelor, and Master.

FAHP

This study uses FAHP to explore the importance of service quality of online group buying in Taiwan. Fuzzy hierarchical analysis can be used to solve the subjective,

fuzzy, and inaccurate problems of traditional hierarchical analysis. The operation of fuzzy numbers is an approximation formula using the extension principle, which can perform addition, subtraction, multiplication, division, and reciprocal operations (Van Laarhoven and Pedrycz, 1983). The fuzzy hierarchy analysis algorithm uses addition and multiplication to perform fuzzy numbers (Herrera et al., 2004). The relative importance of the two factors is compared in pairs and is represented by nine scales of comparison (Saaty, 1980). For the experts to assess the importance of the facet, the evaluation scale is divided into absolute importance, extremely important, quite important, slightly important, and some importance, and the other evaluation scales are in between.

The difference between FAHP and the hierarchical analysis method is in consistency. As the n -item of the hierarchical analysis method needs to be compared in pairs $n(n-1)/2$ times, the answer is too complicated, and the evaluation results are inconsistent. Moreover, the method is time consuming and laborious and may cause the consistency check to fail. FAHP only needs to compare $n-1$ times in pairs. Thus, analyzing the responses is easier, and the consistency of the evaluation results can be maintained. The method does not spend time processing or testing the consistency problem. FAHP still has the recursion of traditional hierarchical analysis (Lien et al., 2011). The present study uses this method to establish a pairwise comparison preference decision matrix.

4. RESULTS

Respondents

Overall, 21 respondents participated in a survey and answered the questionnaire in paper form. The sample is dominated by males (76%), 1–3 participating in online group buying (57%), and individuals with education of a master degree (52%).

FAHP

This study uses FAHP to gain key success factors. Managers use the basis for determining the information they need. Certain industries have three to six success factors. To succeed, the company must focus on the key success factors of the industry and make these factors acceptable. Table 2 shows that weights for the key factors, by ordering the factors from the most important (rank=1) to the least important (rank=7). Through FAHP, we obtain three key factors, which are efficiency, contact, and compensation. Efficiency is defined as being easy to visit and quick to use. Contact is the variety of communication channels. Therefore, a 24-hour relationship exists between customers and companies via an online service (Hendriyani and Auliana, 2018). Compensation is defined as the degree of compensation to customers when problems arise. The weight results of FAHP are sorted from big to small, namely, efficiency, contact, compensation, fulfillment, responsiveness, system availability, and privacy. These findings may be important references for the key factors affecting the service quality of online group buying in the future.

Table 2. Summary of seven factors by FAHP

Factors	Weight	Rank
Efficiency	0.734	1
System Availability	0.613	6
Fulfillment	0.633	4
Privacy	0.598	7
Responsiveness	0.617	5
Compensation	0.698	3
Contact	0.702	2

5. DISCUSSION

This study used seven factors of service quality to investigate online group buying in Taiwan. These factors are efficiency, system availability, fulfillment, privacy, responsiveness, compensation, and contact. Data came from a sample of 21 respondents. The respondents all have experiences with online group buying. Based on the result of this study, to raise the niche market of online group buying, focus should be more on service quality. Moreover, the three key factors that should be prioritized are efficiency, contact, and compensation.

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