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Understanding the Impact of Service Reputation on the Online Group-buying Behaviors

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Abstract: It has been well recognized that vendors' reputation plays an important role in e-commerce. As a popular platform for promoting the services or products online, groupon websites have developed various reputation systems to assist the customers in making their purchase decisions. This paper performs an empirical study to investigate the impact of service reputation on the groupon buying behaviors using data from a major groupon website in China. A set of service reputation metrics is developed to measure the service reputation for different service providers, and the groupon buying behavior is measured by the amount of users participating in the corresponding collective buying activity. Correlation analysis is carried out to find out the relationship between the service reputation and the groupon purchase behaviors. Our research indicates the necessity for an improvement for the current service reputation systems of the groupon web sites.

Keywords: groupon, service reputation, purchase behavior, reputation system

1. INTRODUCTION

Groupon has become a very popular new marketing form that aims to lower the trading price for various services and products on the basis of creating a large volume of orders [1] [2]. Since the first launch of the groupon website in USA in 2008 [4], there has been a boom for various group buying web sites all over the world. For example, the total number of groupon websites has reached 5058 in December 2010. The success of groupon is attributed to the creation of the 'win-win' situation between the various stakeholders of the group-buying systems. However, as a rather new business practice, groupon also meet with some difficulties during its development. Statistics show a sharp decline for the number of the groupon web sites to 943 in February 2012, with a quite low survival rate at only 18.6%. Therefore, a thorough understanding is needed for the customers' purchase intention in the group-buying behaviors to build a robust groupon system.

Trust has been found to have a strong impact on a customer's willingness to purchase in online transactions[4]. In addition, it is considered that a low discount level can have a negative effect on the customers' perception of the service or product quality [5]. Offering significant discounts for various services and products, groupon web sites provide a suitable service promotion platform for the potential customers with low-risk opportunities to try new products and services [6]. Nevertheless, this also implies potential risks for the customers. It is not uncommon that some vendors sell fake or inferior goods through group-buying platforms. This may leads to increased customer distrust and the erosion of the groupons. Consequently, it is essential to build a service reputation system for the credibility of groupon websites [7].

A reputation mechanism is a widely used system in online transactions, utilizing consumers' feedbacks to differentiate good services from bad ones so as to assist the online service selection [8]. In a reputation system, the value of the service reputation can be measured by the ratings given by users from previous service usage [9]. Previous studies have proved the strong influences of the previous customers' feedbacks on the potential buyers' purchase intentions [10-12]. Some research also examine the operating mechanism of the reputation systems. For instance, Fernando and Norma indicates that the level of review detail has a positive relationship with the

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credibility of the online reviews [13].. However, few existing research focuses on the reputation systems for the group-buying web sites. It is still unclear how the service reputations affect the purchase decision making in the groupon behaviors.

This paper aims to provide an insightful understanding about the impact of service reputation on the online group-buying behaviors. The paper is structured as follows. Section 2 presents the state of the art of research on groupon as well as online reputation systems. Section 3 illustrates our methodology, and Section 4 gives an elaboration about the case study. Finally, we conclude the paper in Section 5.

2.   GROUPON AND REPUTATION SYSTEMS

The groupon can be defined as a method that creates a bargaining ability [14].by assembling consumers who want to purchase the same products and services [15] at a lower price on the basis of collective negotiation with the service providers [15]. Both practitioners and academia have paid much attention to this new form of marketing and e-commerce. Ajzen indicates that a person's intention can predict his behavior, and the intention is partly influence by his or her attitude, subjective norm, and perceived behavioral control concerning the behavior [16]. Previous studies of groupon mainly focus on the business model [17][18] and the sales method [19][20]. Recently, some researches also provide evidence for the motivation factors affecting the groupon participation behaviors of the customers, concerning motivation, trust, and reputation [21][22]. Some elements are considered the most crucial in attracting the consumers, including price sensitivity, perceived risk, and conformity. Tsai indicated five ascendants (such as reputation, interaction, disposition to trust, uncertainty avoidance and subjective norm) of perceived risk and trust on initiator and found that trust on initiator positively influences intention of attending online group-buying.

The service reputation problem is acknowledged as a bottleneck for e-commerce development. Some survey showed that 64.2% of the public and 71.1% of the enterprise online transactions would view the seller's reputation ratings [23]. When we buy products on web sites, people have more difficulties in estimating the sellers' trustworthiness, because the sellers and the customers are not able to finish the deal face to face [24]. Consumers build the trust through the way that compare the customer feedbacks about the same kind of services for different sellers. Audun considered the reputation as a unified measurement of trustworthiness referred to the evaluations from others in an organization [25]. Noura defines the reputation of a service as a unified measure of the customer's evaluations of users based on their own experience with the service. It is computed as a total of users' evaluations and give other customers an reference object of the reliability, trustworthiness and credibility of this service and its seller [26]. To attract the customers and make them trust the websites and sellers, many e-commerce web sites build their reputation systems. Reputation systems have become an accepted method for increasing the credibility of ecommerce contracts and for building the trust amongst sellers and customers in e-commerce transactions [27]. A reputation system gathers details and aggregates feedbacks about the service reputation [28]. The evaluations, the number of participants, and the reliability of evaluation sources are important basic trust elements that can largely influence the credibility of the reputation system. These three elements should be considered in measuring a seller's trustworthiness in any websites [29]. Reputation systems can better assist customers' decision making, so it is necessary to build a perfect reputation system in groupon website.

Groupon is a new consumption pattern which has been developed rapidly in recent years. It is natural that market regulation has not got matured for this new type of maketing phenomenon. As a result, the reputation systems for group-buying web sites need improvement to give more information for the customers, despite the wide recognition for the importance of reputation enhancement [30].The reputation mechanism has become a crucial problem for group-buying web sites, especially when the cost for the vendors entering the market is very

low. With the increasing significance of groupon web sites in China, it has become a very important problem in need of a thorough research on the current reputation mechanism to build a robust reputation system.

3.   THE METHOD

This study was designed to evaluate the relationships among the number of customers buying groupon products influenced by the components of the existing reputation evaluation system.

Many different metrics are used in measuring websites service reputation. the criteria and methods has been developed over time, The trend is more and more metrics has been added to the service reputation ranking system. The criteria including delivery, products quality, price, repair service. Moreover, in eBay, users rate the seller's reputation based on the experiences of the deals they have conducted [30]. In this study, we collect the data which use to evaluate a seller's reputation from Meituan. We use these data to examine whether the existing reputation system perfect or not. According to the existing reputation system, we choose five metrics as independent variances in this study, including the taste, the service, the environment, the discount price and the number of customers give score 5 to this deal.

In previous study, the authors define the purchase behavior as the total number of products which have been sold by a seller, or the number of people who give the evaluation to the seller. In this study, we define the purchase behavior as the number of customers buying groupon products from one seller. We have one dependent variance which is the number of customers buying groupon products from one seller. We use bivariate correalation and significance to describe the relationship among the five independent variances and the dependent variance.

Bivariate correalation and regression evaluate the degree of relationship between two quantitative variables. The Pearson correlation coefficient(r), the most commonly used bivariate correlation technique, measures the association between two quantitative variables without distinction between the independent and dependent variables [31]". Accordingly, we define the correlation coefficient as shown in equation (1).

$$\gamma = \frac{n\sum xy - \sum x \sum y}{\sqrt{\left[n\sum x^2 - (\sum x)^2\right]\left[n\sum y^2 - (\sum y)^2\right]}} \qquad (1)$$

The correlation coefficient ranges from −1 to 1. A value of 1 implies that a linear equation describes the relationship between X and Y perfectly, with all data points lying on a line for which Y increases as X increases. A value of −1 implies that all data points lie on a line for which Y decreases as X increases. A value of 0 implies that there is no linear correlation between the variables.

Statistical significance is the probability that an effect is not likely due to just chance alone. In all of the tests [32], a P <0.05 was defined as statistically significant. SPSS version 11.05 was used for analyses. This means if the significance level between the independent variance and the dependent variance is <0.05, then we can conclude that the relativity between two variances is significant

In our study, we use SPSS to analyze the data. We want to find out if the five indexs of the existing credit evaluation system in groupon influence the choices of the customers efficiently. Figure 1 displays the method model in this study.
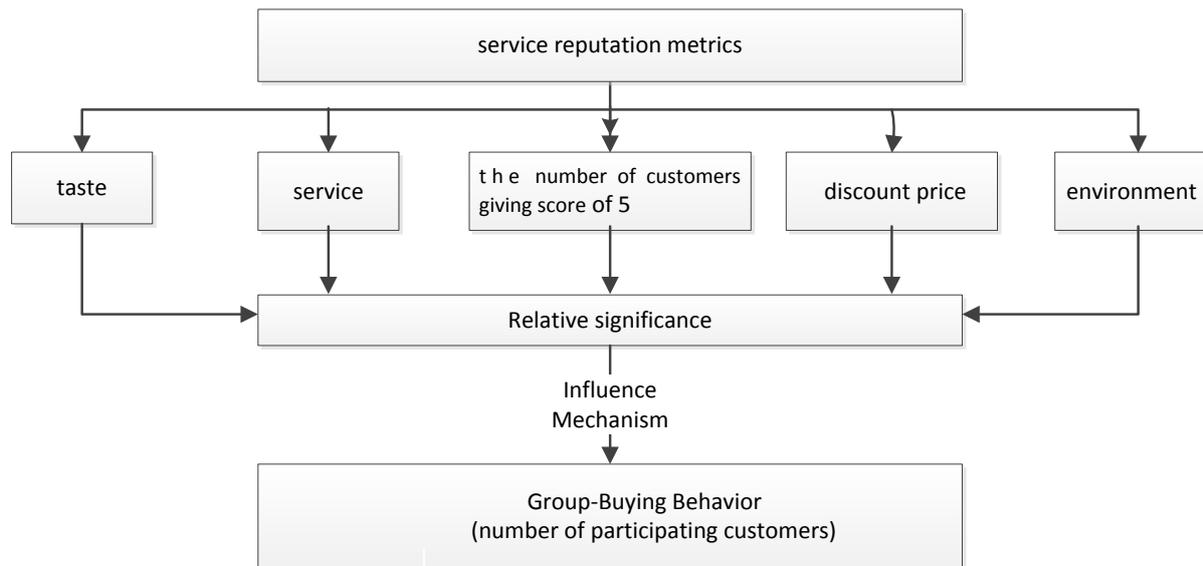
Figure 1. The method used in this study

4. RESULT

A total number of 351 online group-buying sales records are used in our study to analyse the reputation system of MeiTuan. In this paragraph, we will introduce of our bivariate correalation and relativity analysis results. There are five independent variables and one dependent variance in the progress, and finally we will find out if the metrics of the reputation system of MeiTuan are efficiently or not.

4.1 Data collection

Empirical data for this research was obtained using an online survey that has several advantages over traditional paper-based surveys. After doing a research on 11 groupon websites, we make a comparison on the sales volume in January and February of 2013 among these 10 websites, shows in Table 1.

Table 1.   The Sales Volume In January And February in 2013

Groupon website	January	February	Total
DianPing	36.616	32.166	68.782
DiDa	4.829	2.805	7.634
GaoPeng	6.857	6.800	13.657
LaShou	21.061	20.890	41.950
ManZuo	4.876	4.830	9.006
MeiTuan	86.648	74.499	161.147
NuoMi	23.732	22.385	46.117
QianPin	2.013	0.856	2.869
WoWo	30.759	25.980	56.740
JuHuaSuan	7.321	5.282	12.603
58TongCheng	3.720	2.029	5.749

We can draw a conclusion from the chart that the sales volume of MeiTuan is significantly higher other websites. The total number of the sales has reached 161147 Million Yuan in two month. MeiTuan has been built in 2010, The sales volumn of MeiTuan was more than 50 million yuan in 2012, it developed so fast and gained great successful. In this study, we choose MeiTuan as the object to analyze, and collect the data from it, which will make this article more reliable.

As we mentioned before, we collect six kinds of data from MeiTuan, including the taste, the service, the environment, the discount price, the number of customers give score 5 to this deal and the number of customers buying groupon products from one seller. Table 2 displays the definition of these metrics.

Table 2.   The definition of indexes

Index	Definition
Taste	Summarize the score of each consumer has given, divide the total number of evaluate people
Service	Summarize the score of each consumer has given, divide the total number of evaluate people
Environment	Summarize the score of each consumer has given, divide the total number of evaluate people
Discount price	The original price minus the groupon price
The number of customers giving score 5 for this deal	Summarize the total number of people who give score 5
The number of customers buying groupon products from one seller	Summarize the total number of people who buy the products from one seller

We collected 351 group-buying sale records of the MeiTuan websites manually in November 2013, in terms of the six metrics we metioned before.

4.2   Correlation analysis

Six metrics were proposed, namely the taste, the service, the environment, the discount price and the number of customers give score 5 to this deal and the number of customers buying groupon products from one seller, Correlation tests were used to find out the relationships among the variables in the model, and the significant is used to measure if the relationship efficiently or not. These are shown in Table 3.

Table 3.   Correlation tests result

ID	Variable	Variable description	The number of customers buying groupon products from one seller
1	Taste	Pearson correlation	0.060
		Sig. (two-tailed)	0.269
		N	338
2	Service	Pearson correlation	0.064
		Sig. (two-tailed)	0.243
		N	338
3	Environment	Pearson correlation	0.017
		Sig. (two-tailed)	0.762
		N	337
4	Discount price	Pearson correlation	-0.150
		Sig. (two-tailed)	0.462
		N	349
5	The number of customers give score 5 to this deal	Pearson correlation	0.892*
		Sig. (two-tailed)	0.000
		N	349

Bold letter: correlation significant at 0.01 level.

*Correlation is significant at the 0.05 level (two-tailed).

**Correlation is significant at the 0.01 level (two-tailed).

n, numbers vary because of responses that were complete for each item being included.

We illustrate our correlation analysis as follows:

• The taste is not necessarily linked with the number of customers buying groupon products from one seller. The correlation test did return a correlation coefficient of 0.060(P=0.269>0.05), suggesting that there is no relationship between these two variables. The taste can not influence the purchase behavior of customers.

• The service is not necessarily linked with the number of customers buying groupon products from one seller. The correlation test did return a correlation coefficient of 0.064(P=0.243>0.05), suggesting that there is no relationship between these two variables. The service can not influence the purchase behavior of customers.

• The environment is not necessarily linked with the number of customers buying groupon products from one seller. The correlation test did return a correlation coefficient of 0.017(P=0.762>0.05), suggesting that there is no relationship between these two variables. The environment can not influence the purchase behavior of customers.

• The Discount price is not necessarily linked with the number of customers buying groupon products from one seller. The correlation test did return a correlation coefficient of -0.15(P=0.462>0.05), suggesting that there is no relationship between these two variables. The Discount price can not influence the purchase behavior of customers.

• The number of customers giving score 5 to this deal is significant related to the number of customers buying groupon products from one seller. The correlation test did return a significant correlation of -0.892(P=0.000<0.05), suggesting that the number of customers giving score 5 to this deal can strongly influence the the purchase behavior of customers.

5. CONCLUSIONS

This paper examines the current reputation systems of group-buying web sites. In this paper, we investigate the reputation system of MeiTuan to understand whether the service reputation can affect the consumers buying behavior in groupon. We found that the metrics of reputation system in MeiTuan can't affect the purchase intention of consumers except the number of customers who gave a score of 5. Our results shows the necessity for groupon websites to rebuild the system, and add more elements to provide more useful information about the service which can build trust of the customers.

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