

***Exploring Determinants of Voting for the Helpfulness of Online Consumer Product Reviews***

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The Asian Conference on the Social Sciences 2015  
Official Conference Proceedings

**Abstract**

With the growth of e-commerce, online product reviews have become a major information source in consumer purchase decisions. However, anyone can easily provide product review in the manner of anonymous, which may lead to the enormous amount of reviews available for consumers and the manipulation behavior of reviews by vendors. Therefore, many website owners have invested in rating systems that allow consumers to provide and read product review not only on product per se, but also on the credibility of the review content and reviewer. It is estimated that this simple question “Was this review helpful to you” brings in about \$2.7 billion additional revenue to Amazon.com (Spool, 2009). In other words, the “helpfulness” feature of online product reviews helps consumers cope with information overloads and facilitates decision-making. A few recent studies have explored the helpfulness of online customer review, but we still know very little about why a customer perceives a particular review to be helpful or not helpful. The study use consumer reviews for restaurant service at ipeen.com to analyze how the content of reviews (content-based) and the reputation of the reviewer (source-based) impact reader’s helpfulness voting. From the content-based feature, word depth and picture count have a significant effect ( $\beta = 1.24$ ;  $p < .05$ ;  $\beta = 0.16$ ;  $p < .001$ ) on helpfulness voting, thereby supporting H1 and H2. From the source-based feature, reviewers reputation and exposed website have a significant effect ( $\beta = 0.91$ ;  $p < .001$ ;  $\beta = 2.82$ ;  $p < 0.001$ ) on helpfulness voting, thereby supporting H3 and H4.

Keywords: eWOM, Online product review, Source credibility, Helpfulness.

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## Introduction

The Internet has dramatically transformed that the way consumers shop and the way they exchange products/services consumption experiences (Grewal and Lev, 2009). Everyone can share their opinion and experiences regarding products and/or services with complete strangers who are socially and geographically dispersed (Duan, Gu & Whinston, 2008). This electronic form of word-of-mouth (eWOM), online consumer review, can be defined as a peer-generated product and/or service evaluations posted on company or third party websites. Evidence suggests that online reviews have become a valued and influential information source in consumer purchase decisions (Gu et al., 2012). Before deciding to purchase a specific item, consumers now have online access to many reviews posted by several consumers (Zhao et al., 2013). However, anyone can easily post product review in the manner of anonymous, which may lead to the enormous amount of reviews available for consumers and the manipulation behavior of reviews by vendors (Dellarocas, 2006; Hu et al., 2011). This raises the question of why consumers would trust the information provided by strangers and how trust is formed among consumers themselves.

Rating systems that invested by website owners for consumers to provide and read product review not only on product per se, but also on the credibility of the review content and reviewer (Chen et al, 2008). Website owners have commonly used review “helpfulness” as the primary way of measuring how readers evaluate an online review. It is estimated that this simple question “Was this review helpful to you” brings in about \$2.7 billion additional revenue to Amazon.com (Spool, 2009). Based on the accumulated helpfulness votes a review receives, amazon.com could use its proprietary algorithm to automatically rank and pick out those most helpful reviews and feature them at the top of the review section (Wan and Nakayama, 2014). As a result, the “helpfulness” characteristic of online reviews helps consumers cope with information overloads and facilitates decision-making. A few recent studies have explored the helpfulness of online customer review, but we still know very little about why a customer perceives a particular review to be helpful or not helpful (Wu et al., 2011).

Besides, WOM plays a more important role when the product in question is more risky or uncertain and when consumer’s involvement with it is higher (Bensal and Voyer, 2000). However, most current studies focus on WOM impact on low-involvement products like books and CDs, but not high-involvement products such as services (Gu, Park and Konana, 2012). To do this, we use consumer reviews for restaurant service at ipeen.com to analyze how the content of reviews(content-based) and the reputation of the reviewer(source-based) impact reader’s helpfulness voting. The goal of this study is to investigate the effects of online review factors on perceived helpfulness from the content quality and the source credibility.

The rest of the paper is organized as follows: the author presents the literature review focusing on helpfulness of online consumer reviews, followed by a discussion of the research hypotheses. The methods and results are presented next. The paper concludes with a discussion of the results, suggestions for marketing research and practice for future research

## Literature Review and Hypotheses

### Helpfulness of online consumer reviews

Voting a consumer review as helpfulness could increase the likelihood of a review to be read by others. Zhu and Zhang (2010) indicate that the helpfulness score reduces uncertainty about product/service quality, which is an important issue on online marketplaces. A helpfulness of consumer review means that a consumer has actually read the content of review and process for positive and negative evaluations (Morgera, 2014). That is, this particular review provides more or better information relative to others (Weiss et al. 2008). The information provided contains valuable message that is deemed influential for readers and their buying decision process. Recently, scholars have found that consumers are greatly concerned about the content and the source of online consumer reviews when they evaluate the helpfulness of the reviews (Connor et al., 2011; Forman et al., 2008). Li et al. (2013) further summarized that prior studies on online consumer review primary focused on two features of online product review. The first feature focuses on the evaluation of consumer review helpfulness from the perspective of content-based feature. The second feature centers on the assessment of consumer review helpfulness from the perspective of source-based feature. Consequently, the author believe that the content and the source of online consumer reviews are worthy of examination. Fig. 1 shows the proposed research model.

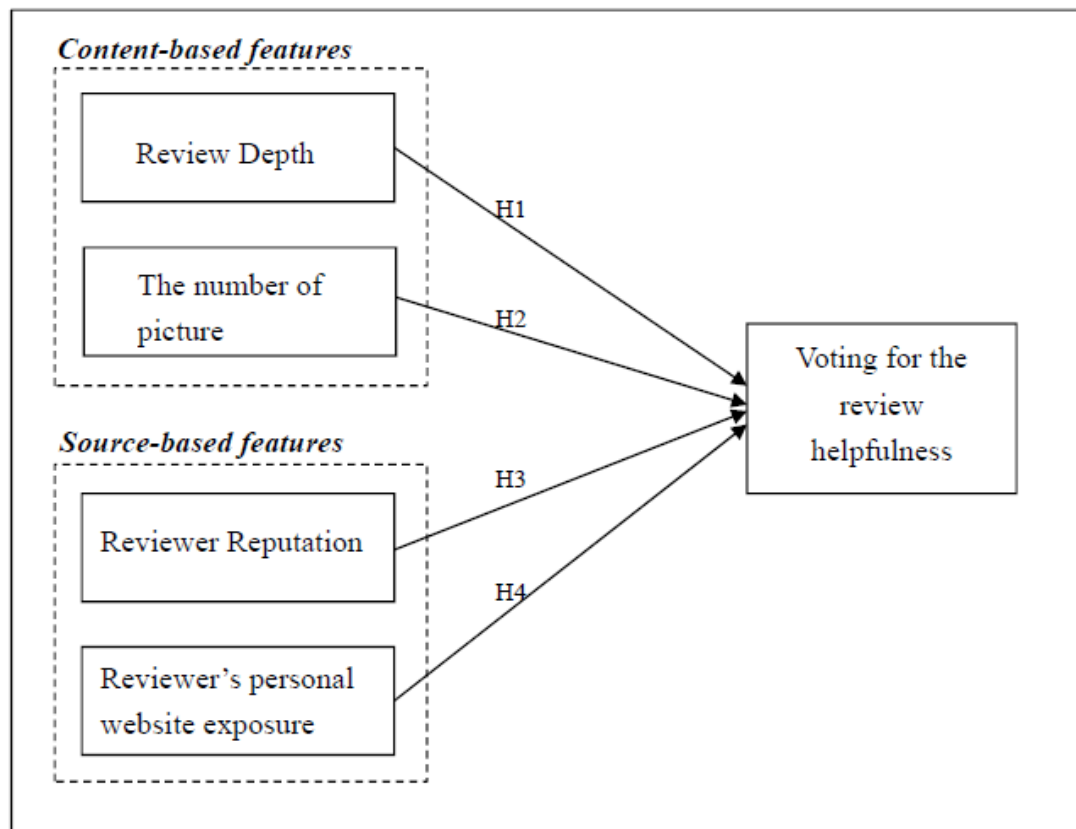


Figure 1: Research Model.

## Content-based features

In content-based features, researchers usually adopt the concept of diagnosticity to understand that how readers judge the usefulness of consumer reviews (Li et al., 2013). The content features of consumer review include the *review depth* and *the number of pictures*. Compared to shorter reviews, longer reviews likely contain more information. Mudambi and Schuff(2010) found that longer reviews were associated with higher review helpfulness rating. High review depth increases the amount of information available to the consumer which helps in the process of making a purchase decision. Additionally, the length of a review may also reflect the reviewer's involvement. The more involved a reviewer is, the more likely he/she will offer quality information that assists others' in purchase decisions (Pan and Zhang, 2011). At the same time, readers' perception of a reviewer's involvement may also influence their evaluations of the review. Along with the same logic of inference, the picture number of a review also has a positive influence on the reader's evaluation of helpfulness. Therefore, the author posits the hypothesis below.

*Hypothesis 1: There exists a positive relationship between review depth and voting for the helpfulness*

*Hypothesis 2: There exists a positive relationship between number of picture and voting for the helpfulness*

## Source-based feature

The source-based features concentrate on the authorship of consumer reviews to explore that how readers assess the usefulness of consumer reviews (Li et al., 2013). In the context of online consumer review, the content features of consumer review include the *reviewer reputation* and *reviewer's individual website exposure*. According to the literature of social psychology, message-source characteristics have long been known to influence readers' judgment, behavior and perception (Chaiken, 1980). Source credibility plays an essential role in adopting online information (Briggs et al., 2002). Thus, the exposure of reviewer's identity and activity level in online community can be assumed to have positive effects on the credibility of a review (Beak et al., 2012). This study uses the grade of contribution as measures of reviewer's reputation. Therefore, the author posits the hypothesis below.

*Hypothesis 3: There exists a positive relationship between reviewer reputation and voting for the review helpfulness*

*Hypothesis 4: There exists a positive relationship between the exposure of reviewer reviewer's personal website and voting for the review helpfulness*

## Research Methodology

In order to collect data and test our research model, the author chosen a third party restaurant review site iPeen.com.tw (<http://www.ipeen.com.tw/>) as research context. Restaurant service is a high involvement product on which consumers usually spend a considerable amount of time searching for information to make the right decision (Gu et al., 2012). iPeen is one of the biggest restaurant review platforms in Taiwan. Any registered member can post review and leave comment on restaurants. We created automated agent to automatically download web pages containing consumer review of restaurant service and reviewer's information from iPeen.com.tw (see Table 1).

Table 1. Data Collected from ipeen.com.tw

Data collected	Definition	Instrumentation of model variables
Word depth	Number of words in a review message	Numerical value (scale)
Picture accounts	Number of pictures in a review message	Numerical value (scale)
Reviewer reputation	The summary of reviewers' post contributions	Numerical value (scale)
Reviewer website exposure	Whether or not reviewers exposed their individual website	Numerical value (1 = website exposed, 0 = website not exposed)
Helpfulness	Number of positive answers to question asking if the review is helpful	Numerical value (scale)

## Data analysis and result

Table 2 presents the descriptive statics of the consumer reviews used in this research. In total, our dataset consist of 1,133 consumer reviews for restaurant service in Taiwan. On average, each consumer review receives 22 voting helpfulness from readers, which contains 1,117 words and 21 pictures to demonstrate consumer's consumption experience in a restaurant service. This result indicates that a consumer review of restaurant service usually combine pictures with description of consumption experiences. The average grade of reviewer reputation in the collected data was 12.47. In addition, a total of 61.2 percent of the 693 reviewer were exposed their individual website, and 38.8 percent of the 440 reviews were not exposed their individual websites (see Figure 2). Finally, Table 3 provides a correlation matrix for these variables.

Table 2. Descriptive statistics for consumers reviews.

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Usefulness	1,133	0	214	20.16	17.782
Word Depth	1,133	2	6135	1117	777.428
Picture account	1,133	0	130	21	16
Reviewer reputation	1,133	1	35	12.47	8.239

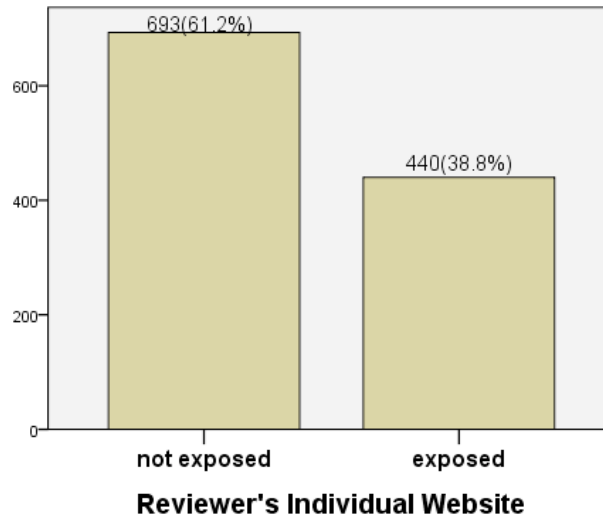


Figure 2. the frequency of reviewer's individual website exposed and not exposed

Table 3. Correlation Matrix (N =1,133)

Variable	(1)	(2)	(3)	(4)	(5)
(1)Log(Word Depth)	1				
(2)Picture account	0.648	1			
(3)Reviewer reputation	0.301	0.299	1		
(4)Exposed individual website	0.141	0.056	0.035	1	
(5)Helpfulness	0.292	0.325	0.491	0.044	1

Ordinary Linear regression model was performed in PASW 22.0 to analyze the hypotheses. The regression results showed that all four paths in this model were significant at  $p < .05$ . The four constructs jointly explained 28.3% of the variance in helpfulness of consumer review. From the content-based feature, word depth and picture count have a significant effect ( $\beta = 1.24$ ;  $p < .05$ ;  $\beta = 0.16$ ;  $p < .001$ ) on helpfulness voting, thereby supporting H1 and H2. From the source-based feature, reviewers reputation and exposed website have a significant effect ( $\beta = 0.91$ ;  $p < .001$ ;  $\beta = 2.82$ ;  $p < .001$ ) on helpfulness voting, thereby supporting H3 and H4.

Table 4. Regression results for helpfulness (N =1,133)

Variable	Coefficient	Standard Error	Standardized coefficient	t-value	Sig.
(Constant)	-5.379	4.869		-1.105	0.270
Log(Word Depth)	1.239	0.552	0.076	2.224	0.025
Picture account	0.161	0.035	0.153	4.556	0.000
Reviewer reputation	0.914	0.057	0.425	15.913	0.000
Reviewer's individual website	2.821	0.927	0.078	03.044	0.002

$R^2 = 0.283$

## **Conclusion and Implications**

Overall, our regression analysis suggests that the customer rating of a restaurant service on iPeen is positively correlated with the helpfulness of the review. This study also has managerial implication. First, e-business firms may attempt to encourage positive WOM from existing customers as part of their marketing strategy. The website manager should evaluate the helpfulness *a priori*, and utilized the consumer review more strategically. Second, given the importance of review content, website manager needs to think about mechanisms to encourage not only more positive customer reviews but also more information-rich reviews that are helpful to further customers. Third, reviewer reputation has highly impact on reader's helpfulness voting. E-business firms should pay more attention on those reviewers and try to build good interactions. Finally, our findings encourage researchers to consider the intrinsic complex interaction effect between the review source and review content when investigating the impact of reviews on consumers in future research.

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## **Acknowledgements**

*This study was supported by Ministry of Science and Technology, Taiwan, R. O. C.*  
(MOST 103-2410-H-270 -002)