



# Journal of Applied Sciences

ISSN 1812-5654

**science**  
alert

**ANSI***net*  
an open access publisher  
<http://ansinet.com>

## Moderating Role of Online Word of Mouth on Website Attributes and Consumer Trust in E-commerce Environment

Huamei Sun

School of Management, Harbin Institute of Technology, Harbin, 150001, China

---

**Abstract:** The development of information technology has far-reaching impact on people's lifestyle. In the context of internet, trust plays an important role in consumers' purchasing decision making process. Many researchers have conducted extensive studies of online consumer trust for many years, and the study of consumer trust issues from the perspective of online word of mouth has become a hotspot of concern to researchers and enterprises. This study looks at the moderating role of online word of mouth on the relationship between website attributes and consumer trust. The study also proposes some effective online word of mouth marketing strategies in the context of e-commerce.

**Key words:** Online word of mouth, consumer trust, website attributes, e-commerce

---

### INTRODUCTION

With the development of information technology, internet has produced far-reaching impact on people's lifestyle and working environment and online marketing has gradually become a new, efficient way of marketing. In the context of e-commerce, companies desiring to be successful at online marketing must have sufficient capability to ensure the security of e-commerce website. One of the main barriers to online shopping is the lack of trust in online purchase, concern about the commodity quality, after-sales service and the security, which are the main reasons users stay away from online shopping. Consumer trust in merchants is one of the main driving forces behind online shopping and merchant profitability.

While pursuing a diverse product mix and innovative internet technology, companies tend to ignore the need to enhance consumer trust in online transaction. When shopping online, consumers face a variety of choice confusions and risks. Many consumers tend to give air to what they think about the products and services after purchase, thus giving rise to Word-of-mouth (WOM) effect. Online shoppers tend to be more pleased to acquire consumer experience from these comments in order to help them make purchasing decisions.

Study of consumer trust from the perspective of online word of mouth has become an issue of interest to both researchers and companies. A comprehensive study of website attributes, online WOM and consumer trust can better analyze the consumer comments, meet the specific consumer needs, facilitate the communication between companies and consumers, improve the quality of products and services and maximize the business profitability.

Online WOM means the consumers communicate information about product quality, service as well as good or bad consuming experience to other consumers in the form of text, voice, image, video or combination of them using online forum, email, search engine and other online platforms.

Word-of-mouth (WOM) has been an important research topic for over fifty years and many research models have been constructed. For example, Martin and Lueg (2013) have presented a model which integrates factors influencing listeners' usage of WOM (WOMU) and the consequences of WOMU in listeners' purchase decisions. Online WOM and expert reviews play a critical role in consumption behavior in the age of the Internet and social media (Kim *et al.*, 2013). An integrated model was established to explore the antecedents and consequences of online WOM (Sun *et al.*, 2006). Some scholars have built a model of gradual reputation formation through a process of continuous investment in product quality and the role of reputation in consumer communities has been studied (Rob and Fishman, 2005; Utz, 2009). In fact WOM consumer interactions, particularly within the environment of online communities (Brown *et al.*, 2007; Hung and Li, 2007; Garg *et al.*, 2011). Online WOM communication influences consumer attitudes and behavioral intentions. Marketers should consider the role of virtual communities when implementing WOM strategy online (Huang *et al.*, 2012; Royo-Vela and Casamassima, 2011). Word of mouth by consumers is attracting increased attention because it can affect brand perceptions and sales (Feng and Papatla, 2011; Keller and Fay, 2012). In recent years, microblogging has become an online tool for customer WOM communications and many corporations have used

microblogging as part of their overall marketing strategy (Jansen *et al.*, 2009). Online consumer reviews are important sources of information that help consumers in their purchase decisions. Marketers should realize the importance to lead reviewers to write more helpful reviews and help consumers to get helpful reviews more easily (Baek *et al.*, 2012; Khare *et al.*, 2011; Cui *et al.*, 2012; Li and Zhan, 2011).

The study of online consumer trust is also a hotspot in the academia and researchers in different fields have conducted extensive research.

The earliest trust-related studies originated in the field of psychology and looked at the effect of trust on interpersonal relations. In the field of sociology, researchers generally focus on the international trust relation at the moral level. Trust-building mechanisms are crucial to the prosperity of on-line market places (Greiner and Wang, 2010). Factors affecting the online trust have been studied, such as products, technology and policy (Rodek *et al.*, 2012).

There are numerous studies of consumer trust theory model, for example, policy-interpersonal trust model and belief-intention model. Policy-interpersonal trust model emphasizes the interpersonal relationship. From the marketing perspective, consumer trust is a kind of trust between all parties involved in the transaction and their trust in marketing system and cyber-security. Belief-intention model is built from the perspective of origination and formation of trust and the analysis of belief-intention of consumers by some marketing experts is generally conducted by comparing the perceived risks and perceived benefits.

In the context of e-commerce, specific website design attributes have distinct effects on shaping consumers' trust. A website's visual effects are a kind of experience with the design and functionality of the website. Shopping websites can attract consumers more intuitively with the help of their visual effects, allowing consumers to experience the convenience and pleasure of shopping. Shopping websites provide consumers with a large wealth of information about products and services through their knowledge content, improve the relationship between companies and consumers through interactions and provide consumers with various safeguards with the help of security features.

Study of consumer trust from the perspective of online WOM has become an issue of interest to both researchers and companies. A comprehensive study of website attributes, online WOM and consumer trust can better analyze the consumer comments, meet the specific consumer needs, facilitate the communication between companies and consumers, improve the quality of products and services and maximize the business profitability.

This study looks at the moderating effect of online WOM on the relationship between website attributes and consumer trust. In the meanwhile the study proposes some effective, feasible WOM marketing strategies in the context of internet for companies' reference.

## MATERIALS AND METHODS

This study has designed a model with online WOM as a moderator variable, website attribute as an independent variable and consumer trust as a dependent variable and explored the moderating effect of online WOM on the relationship between website attribute and consumer trust. A particular variable P has moderating effect when it affects the relationship between independent variable U and V and the variable P will affect the direction and strength of the relation between U and V. The website attributes were considered from the perspectives of knowledge content, visual effects, interactivity and security. Due to the constraint of length, it is impossible to present all test details in a study. This study mainly focuses on the analysis and discussion of the main results.

The study began with questionnaire design in order to acquire data by distributing questionnaires to target samples. The questionnaire consists of four parts, with an introductory section that provides participants with a preliminary understanding of the questionnaire. The first part of the main body of the questionnaire invites consumers to comment on the website attributes based on the most recent online shopping experience, on a scale from highly satisfied, satisfied to highly unsatisfied; the second part involves overall comment on the online WOM; the third part surveys the level of consumer trust and the fourth part asks participants to provide basic personal information about age, educational background and years of internet use, etc.

This survey targets young people especially college students who have online shopping experience. The questionnaire is distributed in the form of hardcopy and electronic copy mainly through forums, micro-blog, etc. The data acquisition from hardcopy of questionnaire was mainly concentrated in Heilongjiang Province and Inner Mongolia Autonomous Region. A total of 260 copies of questionnaire were distributed and 217 of them returned, 30 of which is invalid, registering a response rate of 83%. The data analysis was conducted using statistical analysis software SPSS.

## RESULTS AND DISCUSSION

**Reliability and validity analysis:** Before the data analysis, consideration should be given to the data reliability and

validity in the first place. The reliability test result shows that the value of Cronbach  $\alpha$  of all variables except for that of online WOM (which is 0.693) is above 0.7, indicating that the questionnaire used in this study has a high level of reliability. Then, we conducted KMO and Bartlett ball-type tests of all variables, in which KMO value is 0.864 and passed the significance test, indicating that the data is suitable for factor analysis. Next, a factor analysis is conducted using orthogonal rotation method, with results indicating that the loading value of each factor is above 0.5. This means that the validity of scale structure used in the questionnaire is good.

**Descriptive statistics and correlation analysis:** We conducted a descriptive statistical analysis of the variables, with results indicating that the average values of four attributes of website, online WOM and consumer trust are all above three. In particular, the average value of online WOM is 3.86, suggesting that the comments on commodity and service are the main points of reference for consumers when shopping online. The average value of consumer trust is 3.85, indicating that it is highly necessary to take measures to earn consumer trust in e-commerce websites. Among the four dimensions of website attributes, the comments on website's knowledge content have the highest average value and the comments on website security have the lowest average value, indicating that online consumers are concerned primarily about the security of e-commerce platform and that companies should improve the quality of their websites in order to reduce the risks and provide consumers with a trusted, pleasurable shopping environment.

A correlation analysis was conducted mainly to examine the uncertain relations among variables. The results of correlation analysis suggest that the relation between four dimensions of website attributes (i.e., knowledge content, visual effects, interactivity and security) and consumer trust is significantly correlated at  $p < 0.01$  and the coefficient value is 0.345, 0.321, 0.375, 0.612, respectively, indicating that there exists a positive correlation between website attributes and consumer trust; the online WOM is significantly correlated with consumer trust at  $p < 0.01$  and the coefficient value is 0.521, indicating that online WOM has significant impact on consumer trust.

**Regression analysis:** Regression analysis is intended to examine the statistical relation between a dependent variable and one or several independent variables.

**Regression analysis of website attributes and consumer trust:** The regression analysis shows that F-value in all regression equations is significant and the model passed the test. In particular, website knowledge content, website visual effects, website interactivity and website security all passed the test and have positive impact on consumer trust.

**Regression analysis of online WOM and consumer trust:** The results of regression analysis are shown in Table 1. The results show that F-value of the regression equation is significant and the model passed the test, indicating that online WOM has positive impact on consumer trust.

**Analysis of moderating effect of online WOM on website attributes and consumer trust:** Moderator variables are those that can affect the strength or direction of relation between independent variables and dependent ones. In this study, the moderating effects of online WOM on website knowledge content and consumer trust, on website visual effects and consumer trust, on the website interactivity and consumer trust as well as on the website security and consumer trust were examined and analyzed, respectively. The following provides an example of the analysis of the moderating effect of online WOM on website knowledge content and consumer trust.

We found that after adding the moderator variable of online WOM, the regression coefficients of website knowledge content and online WOM exist significantly at 0.198 and 0.457, respectively at  $p < 0.01$ . After adding the product term of independent variable "website knowledge content" and the moderator variable "online WOM", the analysis shows that the regression coefficients of the independent variable and the moderator variable both exist significantly. Meanwhile, the change of  $R^2$  is 0.011 after adding the product term of website knowledge content and online WOM, the t test passed and F exists significantly, suggesting that the moderating effect of online WOM on website knowledge content and consumer trust exists significantly. By analogy, we can test the moderating effect of online WOM on three other website attributes and consumer trust. The test results prove that online WOM has the moderating role on the relationship between website attributes and consumer trust.

Table 1: Results of regression analysis of online WOM and consumer trust

Dependent variable	Independent variable	F-value	Adjustment R2	Standard regression coefficient	T	Sig.
Consumer trust	Online WOM	67.019	0.267	0.414	8.186	0.000

## **ONLINE WOM MARKETING STRATEGIES**

Based on the previous analysis, this study proposes some meaningful WOM marketing strategies which will inform the marketing decision making process of enterprises in order to increase consumer trust in e-commerce websites.

In the process of online shopping, consumers pay more attention to online comments, largely for the purpose of better use of products and reduced purchase-related risks. Making judgments about commodities and services based on existing consumer comments tend to be more convincing for numerous consumers than the one-way advertisements from the merchants and WOM marketing is playing an important role in consumers' decision making process. Not only consumers themselves are concerned about online comments, many enterprises have long been keeping track of online comments on their products and services. Many e-commerce vendors provide an online comment module on their websites to exploit the value of online comments. They regard online comments as the core of business practice and usually endeavor attract advertising opportunities through consumer comment. In e-commerce environment, online comments will continue influence the profits of enterprises and purchasing decisions of consumers.

It is suggested that enterprises establish a word-of-mouth evaluation system. Online comments are not simply about assessment of commodity functionality or expression of consumer opinions. Consumers have more or less awareness of risk when purchasing products or services and they often look for prior experience with related products and services from other consumers. The higher the level of dissemination of online comments, the more reliable the description of products or services is, the greater impact it would have on the consumers' purchasing decisions.

The contents of WOM usually comprise introduction, explanation, description of experience, comparison, evaluation and suggestions. The contents of WOM could be either positive or negative and either favorable or damaging to the business operations. The bad news often travels faster than good news online. For unfavorable consumer comments on shopping websites and products, companies should establish an early warning platform, control the information flow of related business, ensure the information dissemination channels are obstacle free and true and prevent the unfavorable comments from producing negative impact on the consumer trust. When faced with a crisis, companies

should endeavor to align their own interests with public interests and the public confidence of media and communicate the true information to the general public in an appropriate, objective manner in order to minimize the possible loss.

Website attributes have a significant impact on consumer trust. Shopping websites should make every effort to provide as much information about products and services as possible in order to help consumers compare product performance and price and make well-informed purchasing decisions. Companies should improve website security through technical and managerial measures.

Currently, numerous companies worldwide are carrying out WOM marketing and successful WOM online marketing has become one of the important tasks of many companies. Companies have to find the true value of WOM marketing in order to succeed. For example, since opinion leaders have sufficient say in respective areas, companies may exploit the guiding role of opinion leaders to build up its brand recognition among various types of consumers online. Product quality is critical to WOM marketing, as superior quality is the basis of favorable WOM and inferior-quality products will inevitably result in poor consumer experience, not to mention the formation of favorable WOM. Companies need to improve the quality of their products and services to meet the consumer expectations and personalized needs.

## **CONCLUSION**

This study studied the moderating role of online WOM on the relationship between website attributes and consumer trust, discussed the issues related to online WOM. The study also discussed in detail the online WOM marketing strategies and proposed some effective and meaningful WOM marketing strategies in the context of e-commerce to inform the business decision making process. The research conducted by this study would facilitate the communication between online vendors and consumers, improve the quality of products and services, maximize the business profitability and ultimately enhance enterprises' competitive advantage.

## **ACKNOWLEDGEMENT**

This study was supported by National Natural Science Foundation of China (No. 71271067) and the Fundamental Research Funds for the Central Universities (Grant No. HIT.HSS.201105).

**REFERENCES**

- Baek, H., J. Ahn and Y. Choi, 2012. Helpfulness of online consumer reviews: Readers objectives and review cues. *Int. J. Electronic Commerce*, 60: 99-126.
- Brown, J., A.J. Broderick and N. Lee, 2007. Word of mouth communication within online communities: Conceptualizing the online social network. *J. Interactive Market.*, 11: 2-20.
- Cui, G., H.K. Lui and X. Guo, 2012. The effect of online consumer reviews on new product sales. *Int. J. Electronic Commerce*, 17: 39-58.
- Feng, J. and P. Papatla, 2011. Advertising: Stimulant or suppressant of online word of mouth? *J. Interactive Market.*, 25: 75-84.
- Garg, R., M.D. Smith and R. Telang, 2011. Measuring information diffusion in an online community. *J. Manage. Inform. Syst.*, 28: 11-38.
- Greiner, M. and H. Wang, 2010. Building consumer-to-consumer trust in e-finance marketplaces: An empirical analysis. *Int. J. Electronic Commerce*, 15: 105-136.
- Huang, J.H., T.T. Hsiao and Y.F. Chen, 2012. The effects of electronic word of mouth on product judgment and choice: The moderating role of the sense of virtual community. *J. Applied Soc. Psychol.*, 42: 2326-2347.
- Hung, K.H. and S.Y. Li, 2007. The influence of ewom on virtual consumer communities: Social capital, consumer learning and behavioral outcomes. *J. Advertis. Res.*, 47: 485-495.
- Jansen, B.J., M. Zhang, K. Sobel and A. Chowdury, 2009. Twitter power: Tweets as electronic word of mouth. *J. Amer. Soci. Inform. Sci. Technol.*, 60: 2169-2188.
- Keller, E. and B. Fay, 2012. Word-of-Mouth advocacy: A new key to advertising effectiveness. *J. Adv. Res.*, 52: 459-464.
- Khare, A., L.I. Labrecque and A.K. Asare, 2011. The assimilative and contrastive effects of word-of-mouth volume: An experimental examination of online consumer ratings. *J. Retail.*, 87: 111-126.
- Kim, S.H., N. Park and S.H. Park, 2013. Exploring the effects of online word of mouth and expert reviews on theatrical movies' box office success. *J. Youth Stud.*, 16: 98-114.
- Li, J. and L. Zhan, 2011. Online persuasion: How the written word drives wom evidence from consumer-generated product reviews. *J. Adv. Res.*, 51: 239-257.
- Martin, W.C. and J.E. Lueg, 2013. Modeling word-of-mouth usage. *J. Bus. Res.*, 66: 801-808.
- Rob, R. and A. Fishman, 2005. Is bigger better? Customer base expansion through word-of-mouth reputation. *J. Political Economy*, 113: 1146-1175.
- Rodek, J., D. Sekulic and M. Kondric, 2012. Dietary supplementation and doping-related factors in high-level sailing. *J. Int. Soc. Sports Nutr.*, Vol. 9. 10.1186/1550-2783-9-51
- Royo-Vela, M. and P. Casamassima, 2011. The influence of belonging to virtual brand communities on consumers' affective commitment, satisfaction and word-of-mouth advertising The ZARA case. *Online Inform. Rev.*, 42: 517-542.
- Sun, T., S. Youn, G. Wu and M. Kuntaraporn, 2006. Online word-of-mouth (or mouse): An exploration of its antecedents and consequences. *J. Comput.-Med. Commun.*, 11: 1104-1127.
- Utz, S., 2009. Egoboo' vs. altruism: The role of reputation in online consumer communities. *New Media Soc.*, 11: 357-374.