

Summer 2010

## Can the Presence of Online Word of Mouth Increase Product Sales?

Alanah Mitchell  
*Appalachian State University*

Deepak Khazanchi  
*University of Nebraska at Omaha, khazanchi@unomaha.edu*

Follow this and additional works at: <https://digitalcommons.unomaha.edu/isqafacpub>



Part of the [Databases and Information Systems Commons](#), [E-Commerce Commons](#), [Marketing Commons](#), and the [Technology and Innovation Commons](#)

---

### Recommended Citation

Mitchell, Alanah and Khazanchi, Deepak, "Can the Presence of Online Word of Mouth Increase Product Sales?" (2010). *Information Systems and Quantitative Analysis Faculty Publications*. 9.  
<https://digitalcommons.unomaha.edu/isqafacpub/9>

This Article is brought to you for free and open access by the Department of Information Systems and Quantitative Analysis at DigitalCommons@UNO. It has been accepted for inclusion in Information Systems and Quantitative Analysis Faculty Publications by an authorized administrator of DigitalCommons@UNO. For more information, please contact [unodigitalcommons@unomaha.edu](mailto:unodigitalcommons@unomaha.edu).

# The importance of **BUZZ**

**BY ALANAH MITCHELL AND DEEPAK KHAZANCHI**

Today's online customers can exchange opinions and experiences related to companies, products and services with individuals outside of their personal communication network of family, friends, acquaintances and colleagues. This ability to exchange opinions and experiences online is known as online word of mouth and has become increasingly popular in recent years. Traditional word of mouth is described as informal communications that are exchanged among consumers regarding sellers or the ownership, usage or characteristics of goods and services from sellers. Thanks to advances in both information technology and the Internet, the power and potential impact of online word of mouth has substantially increased. Not only are message boards (e.g., eOpinions), microblogging sites (e.g., Twitter) and online communities (e.g., Facebook) available for posting information and exchanging opinions, but many companies have decided to include forums for exchanging word of mouth on their online product pages (e.g., Amazon, Overstock, Walmart, Target).

**Can online word of mouth  
increase sales?**



## Executive Summary

**The power and potential impact of online word of mouth** has increased substantially. Consumers have come to accept and rely upon online word of mouth, so it is important to understand how it works and what kind of impact it has on online product sales. This article provides an assessment of this question through an analysis of sales and online word of mouth data from a multi-product e-commerce retail firm.

Online word of mouth also may be used as a technique for viral marketing in which a company uses its customers to promote a product or service to prospective customers, which is the case when companies include forums for exchanging word of mouth on their product pages. The use of online word of mouth has the potential to influence product sales for e-commerce companies. However, research of word of mouth using online review comments and ratings has received limited attention despite existing research arguing that understanding how word of mouth differs in an online environment is critical for marketing managers.

Anecdotal evidence and prior empirical studies indicate a high level of acceptance of consumers and reliance on online word of mouth. More specifically, Forrester Research has found that 50 percent of young Internet surfers rely on online recommendations when purchasing CDs, movies and video games. Additionally, 67 percent of consumer goods sales are based on word of mouth, according to another study from McKinsey and Company. Some researchers also have found that positive customer reviews can have a great impact on repurchase intention. Nielsen's Global Online Consumer Survey also has found that users are increasingly relying on online word of mouth during the decision-making process. Previous research also has shown that the influence of word of mouth can be so strong that it overrides private signals (e.g., gut instinct or feelings) and results in individuals relying solely on the information provided by others. In fact, some researchers have suggested that online word of mouth may eventually take the place of traditional advertising. Managers also have been encouraged to review the online product reviews for the less popular because online reviews can be even more influential for these items.

In this article, our objective is to empirically address the following question: Does the presence of online word of mouth in the form of review comments and reviewer ratings significantly influence product sales on an e-commerce multi-product retail Web site? We assess this question through an analysis of sales and online word of mouth data from a multi-product e-commerce retail firm.

## How It Works

Word of mouth (online or otherwise) relies on information

that is communicated about companies, products or services among consumers. In comparison to traditional advertising (e.g., TV, newspapers) and other marketer-controlled sources, word of mouth is perceived by consumers as being more credible than private signals, more accessible through social networks and more influential on consumer behavior. The notions of volume and valence have been found to be two of the most important attributes of word of mouth.

The first of these attributes, volume, measures the total number of word of mouth interactions. The existence of online word of mouth results in an increase in awareness and a positive (or negative) attitude toward a product potentially resulting in a change in sales. Thus, the more conversation in the form of online comments there is about a product, the more likely someone will be informed about it. This leads to increased product awareness, which may in turn lead to higher product sales. Numerous previous studies have shown that word of mouth volume significantly correlates with consumer behavior and market outcome. In fact, rational consumers still pay attention to anonymous online posts, even when it is possible for firms to pose as online consumers. While many researchers have concluded that online customer reviews have a significant influence on the sale of products, some have argued that only the volume of the reviews matter.

The second word of mouth attribute, valence, measures the nature of the word of mouth message and whether it is positive or negative. Behavioral research has shown that it is unclear whether positive word of mouth leads to increased sales. However, some research has suggested that online ratings have become increasingly important because they provide customers with a community of knowledge prior to decision-making. Indeed, a study of the influence of consumer ratings on video game sales showed that a higher rating by only one point was associated with a 4 percent increase in sales.

For our research, we evaluated the following questions:

- Does the presence of online word of mouth in the form of review comments and ratings lead to higher product sales on an e-commerce retail Web site?
- How do the online word of mouth attributes (i.e., volume and/or valence) affect product sales?

## Study Details

We conducted a quasi-experiment with a two-group experimental design using consumer review ratings, customer comment reviews and real product sales data obtained from a leading multi-product e-commerce company. The organization employs nearly 300 people and has been in business since 2001. This online retailer currently owns and operates more than 150 niche stores. To date, the e-commerce company has served more than 1 million customers in the various categories of products it sells. This online retailer is similar to other online retailers in that it markets its products on its own Web site as well as the other major online marketing channels including pay-per-click advertising, affiliates, eBay and Amazon.

The company also recognizes the impact of social networking and alternative media marketing avenues and that is why it has implemented online ratings and review comments. The data for this study was collected before and after the November 2006 implementation of an online review system on the company's retail e-commerce Web site.

We use the number of review comments in the form of review text (positive or negative) provided by consumers as a measure for the volume attribute of word of mouth. We use review ratings in the form of "star ratings," 5 stars (best) to 1 (worst) as a proxy for the valence attribute of word of mouth. Generally, for our subject firm, star ratings accompany review comments.

Reviews are collected either from the product page of the Web site or through e-mail (usually a reply e-mail from the customer after they have received a shipment notice by e-mail). A review page includes a "write a review" link at the bottom of the page. Reviews appear on the product page with pros, cons and other suggestions from previous customers. Additionally, the reviews show whether the customer is a verified purchaser, a registered reviewer or neither. (A verified purchaser is a reviewer for whom the company has record of purchasing the product under review. A registered reviewer has not necessarily purchased the product from the company, but can be identified by an e-mail account. A third option exists for reviewers who do not fit either category and want to remain anonymous.)

The online review system that was implemented by the subject firm does allow the firm to filter product reviews. In general, reviews are filtered to exclude any specific comments related to price, customer service issues and other data that does not speak to product quality. It is important to note here that all reviews (negative or positive) related to product quality are posted.

In order to minimize the effect of the holiday shopping period on online product sales, we deliberately chose to look at sales and other data for January 2007 after the winter break. The first timeframe chosen was the week of January 16, 2006, before the implementation of the online review system. The second time frame chosen was the week of January 15, 2007 after the implementation of the review system. By analyzing data from the same week (in different years) we hope to minimize additional confounding effects. However, we do acknowledge the potential of other confounding variables unrelated to online word of mouth that could affect product sales. Examples of such variables include product brand, perceived quality of product, featured items and advertising/

marketing campaigns among many others.

We attempted to manage any potential confounding effects by ensuring that there were no special marketing campaigns going on during the two time periods the data was collected. Further, the comparison of similar time periods for the same products before and after the introduction of online word of mouth substantively reduced any potential confounding caused by product category and product popularity.

Overall, data from 546 products and 73 categories was collected both before and after the implementation of the new customer review system. Most important, a product was compared to its own performance over the two time periods.

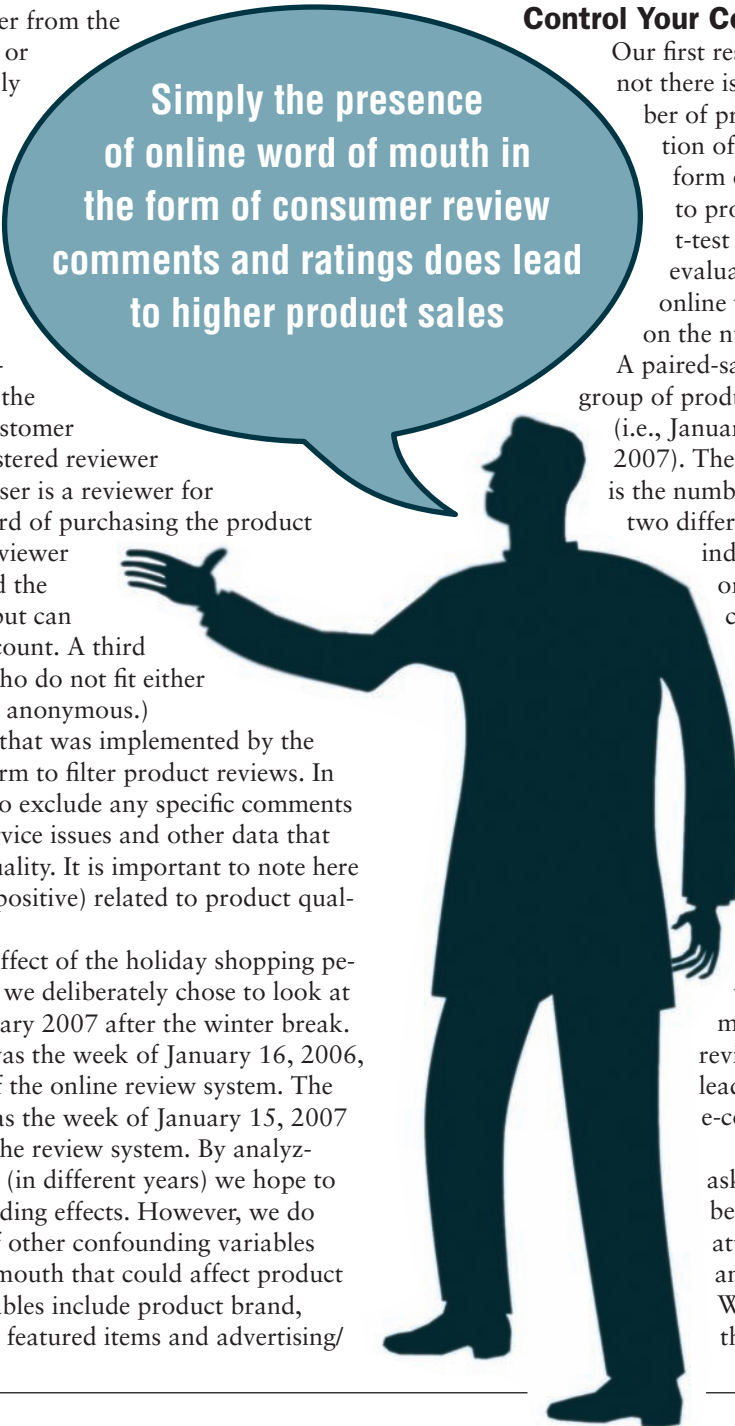
### Control Your Content

Our first research question asks whether or not there is a significant change in the number of products sold following the addition of online word of mouth (in the form of consumer ratings and reviews) to product pages. A paired-samples t-test was conducted in SPSS 10.0 to evaluate the impact of the addition of online word of mouth to product pages on the number of products sold.

A paired-samples t-test allows us to test one group of products on two different occasions (i.e., January 16, 2006, and January 15, 2007). The dependent variable for this test is the number of product units sold on the two different periods, and the categorical independent variable is time or the two periods being compared.

The results show that there is a statistically significant increase in the number of products sold from January 2006 ( $M=5.57$ ,  $SD=8.052$ ) to January 2007 ( $M=6.64$ ,  $SD=12.113$ ,  $t(545)=-2.92$ ,  $p<.004$ ). The eta squared statistic (.015) indicates a small effect size. Therefore, we can conclude that simply the presence of online word of mouth in the form of consumer review comments and ratings does lead to higher product sales on an e-commerce retail Web site.

Our second research question asks whether there is a relationship between online word of mouth attributes—volume and valence—and the number of products sold. We measure volume in terms of the number of online consumer



Simply the presence of online word of mouth in the form of consumer review comments and ratings does lead to higher product sales



## FIVE GUIDELINES

### For e-commerce managers thinking about online word of mouth

- 1 Encourage customers to write reviews by using incentive programs
- 2 Build or license a recommendation system based on strategic interest in online word of mouth
- 3 Develop the rules for filtering and posting reviews; an option could be to exclude reviews that are not tied to a product
- 4 Show both the positive and negative comments to customers
- 5 Invite different types of reviews to review products; for example include reviews from both experts and registered reviewers

review comments and valence in terms of the average consumer rating. We tested the data using standard multiple regression in which the two continuous independent predictor variables (i.e., number of online review comments and average rating of products) were entered into the equation simultaneously and evaluated in terms of their predictive power of the continuous dependent variable (i.e., number of products sold).

The standard multiple regression results show that the number of online consumer reviews had a significant ( $p < .0005$ ) impact on the number of products sold. However, average consumer ratings did not have a significant effect on the number of products sold. Additionally, we added the “number of product views” as an independent predictor variable in the model. We found that this did not change the resulting model. This is important to the extent that it affirms our findings and shows that the number of product views (a surrogate measure of the popularity of a product) does not have any impact on sales as it relates to our research question.

Overall, the final model was able to account for 40 percent of the variance in the number of products sold. Therefore, we can conclude that the volume of online ratings is more important than whether or not the ratings are positive or negative in predicting an increase in product sales. This outcome is in line with previous research, which has shown that it is unclear whether positive word of mouth in terms of average reviewer ratings (i.e., valence) leads to increased sales.

Because of the high acceptance of consumers and their apparent reliance on online word of mouth, it is important for marketing managers and organizations to understand mechanisms for dealing with negative reviews and ratings. Practices that can help in coping with unfair ratings and discriminatory behavior related to a company’s reporting system suggest both

using controlled anonymity to avoid unfairly low ratings and using filtering to reduce the effect of unfairly high ratings.

Some authors have also suggested that firms try to “engineer” word of mouth communications among customers. Example companies such as Picador Press, Lee Dungarees, and Hasbro have been taking action to increase the number of conversations taking place related to their products, rather than hoping that satisfied customers and opinion leaders would eventually start talking about their products with people in their social networks. This idea is similar to the idea of the retail site in this study, where site customers have access to review products while they are on the site.

Furthermore, the research suggests that the managers’ motivation for taking advantage of online word of mouth is a new tool that grew out of the idea that the effectiveness of traditional media advertising is declining, particularly among younger demographics. However, despite many researchers arguing that online word of mouth is important, few researchers provide recommendations for organizations trying to manage online word of mouth. This research suggests that e-commerce organizations should include product reviews on their product pages so customers can input their opinions. A detailed list of guidelines for online retailer managers based on our results is outlined above.

### Words Matter

The overarching aim of this study was to empirically study whether the presence of online word of mouth in the form of review comments and ratings leads to higher product sales on an e-commerce retail Web site. An empirical analysis of real data collected from a multi-product retail e-commerce firm was conducted. We found that there is a significant increase in the number of products sold following the addition of online

word of mouth. We also found that the volume of online word of mouth can significantly influence product sales while valence (or consumer ratings) did not matter at all.

From a practical perspective, our results suggest that having word of mouth on an e-commerce site is important for increasing product sales. There is clear empirical support in our study for the contention that sales of reviewed products increased at a higher rate. Our research findings also imply that it is important for companies to focus on creating an online buzz about their products and not be concerned with whether the buzz is positive or negative (i.e., valence). As mentioned above, this outcome is in line with previous research showing that it is unclear whether positive word of mouth in terms of average reviewer ratings (i.e., valence) leads to increased sales.

A limitation of this study is the potential of confounding variables other than online word of mouth that affect product sales. Examples of such variables could include product brand, perceived quality of product, featured items and advertising/marketing campaigns among many others. However, as mentioned earlier, we attempted to manage any potential confounding effects by ensuring that there were no special marketing campaigns going on during the two time periods the data was collected. Additionally, our decision to compare

similar time periods for the same products before and after the introduction of online word of mouth substantively reduced any potential confounding caused by product category and product popularity. Further research should be conducted into these and other explanatory factors that complement online word of mouth to affect product sales or potentially affect sales via increased word of mouth. ●

---

**Alanah Mitchell** is an assistant professor of computer information systems in the John A. Walker College of Business at Appalachian State University. She may be reached at [mitchellaj@appstate.edu](mailto:mitchellaj@appstate.edu). **Deepak Khazanchi** is professor of information systems and quantitative analysis and associate dean for academic affairs in the College of Information Science and Technology at the University of Nebraska at Omaha. He may be reached at [khazanchi@unomaha.edu](mailto:khazanchi@unomaha.edu).

#### Authors' Note

All references related to this article will be available until 31 December 2011 on the author's Web site: [www.appstate.edu/~mitchellaj/](http://www.appstate.edu/~mitchellaj/). Also, interested readers are welcome to request a complete reference list from the authors via e-mail.

# TRiG

The Research Intelligence Group

#### THE BEST KEPT SECRET IN THE US

125 professionals. International expertise.

Research partner to some of the world's largest brands.



#### Full Service Marketing Research

##### SECTORS

Healthcare  
Tech & Telecom  
Financial  
Legal & Information Publishing  
Hospitality  
Sports & Entertainment  
Lottery & Gaming  
Consumer Packaged Goods

We Are Your **Worldwide** Research Solution



**WIN**  
Worldwide  
Independent Network  
Of Market Research

PHILADELPHIA • TAMPA • DENVER • MONTREAL • TORONTO

215.643.8744 **trig-us.com**