

THE IMPACT OF ONLINE WORD-OF-MOUSE

Sales of New Products at Amazon.Com

Geng Cui

Department of Marketing and International Business, Lingnan University, Tuen Mun, Hong Kong

Xiaoning Guo

Department of Marketing, University of Cincinnati, 2600 Clifton Ave., Cincinnati, Ohio 45221 U.S.A.

Keywords: Word-of-Mouth, Product Reviews, New Products, e-Marketing, Panel Data Analysis.

Abstract: Online word-of-mouth (WOM) has become a major information source for consumers planning to purchase new products. This study examines the effect of online consumer reviews on the sales of new products. Using the data collected from Amazon.com over a period of nine months, we find that while the effect of valence of online reviews is greater than that of volume, negative consumer reviews affect new product sales more than positive reviews, but not in a negative way. Volume and valence of online reviews have greater impact on experience products than on search products. Moreover, the volume of consumer reviews has a greater effect on new product sales in the later stage of product life cycle (PLC). Thus, online WOM gains momentum over time and significantly affects the sales of new products beyond the initial period. Marketers need to pay greater attention to online WOM and promote consumer reviews when launching new products.

1 INTRODUCTION

Word-of-mouth (WOM) refers to oral, person-to-person communication between a receiver and communicator with respect to a topic. In recent years, online WOM communication in the form of online consumer reviews has become a major information source and decision aid for consumers when they plan their purchases. With the help of online consumer reviews, consumers can benefit from the diverse opinions of different people who have bought or used the new products so that they can make informed decisions. A recent survey of DoubleClick (2004) finds that WOM plays a very important role in consumers' purchasing processes for many types of products and that for some goods, such as electronics and home appliances, product review websites outrank all other media in influencing consumer decisions. As more consumers search for information on new products from online forums and exchange their opinions on the Internet, marketers also see online forums as a good platform to promote their new products. Both researchers and practitioners view online WOM as an important

driver of consumer behavior when they plan their purchases of new products.

Compared with offline WOM, online WOM has unprecedented speed and reach. Compared with paid advertising, consumers trust online reviews more, because they are based on the experiences of others and are perceived as more relevant and easier to understand (Herr et al., 1991). Several researchers have found a positive relationship between online consumer ratings and sales of books and movies and viewership of TV shows (Chevalier and Mayzlin, 2006; Godes and Mayzlin, 2004). While it is plausible that online WOM affects the sales of new products, we need more in-depth investigations of the effects of online WOM on new product sales with respect to the following research questions. First, what attributes of online consumer reviews, volume or valence, affect new product sales? Second, do positive and negative reviews affect new product sales differently? Third, does the effect of online reviews vary for different types of products? Fourth, does the effect of online reviews differ over stages of product life cycle? Unlike previous research focusing on entertainment or information products over a short time, this study examines the

effects of online WOM on the sales of new products over an extended period and explores such effects across two product categories: experience vs. search products.

Using data from Amazon.com, we conduct a longitudinal study of the effects of online customer reviews on the sales of new products. The results suggest that while the valence of online reviews has a greater impact than the mere volume of reviews, negative consumer reviews affect new product sales more than positive reviews, but not in a negative way. The volume and valence of online reviews affect experience products more than search products. Moreover, the volume of online consumer reviews has a greater effect on new product sales in the later stage of product life cycle (PLC). Thus, online WOM gains momentum over time and significantly affects the sales of new products beyond the initial period. These findings have meaningful theoretical and managerial implications for understanding the role of online WOM in affecting new products sales.

2 LITERATURE REVIEW

2.1 Word of Mouth

In the marketing context, WOM represents the type of interpersonal communication that significantly influences product evaluations and purchase decisions and has been shown to be more powerful than printed information because WOM is considered more credible. Moreover, negative WOM is believed to spread more quickly than positive WOM, making it a fearful phenomenon to practitioners. WOM has been seen as a double-edged sword as informal discussions among consumers can make or break a product. Despite its omnipresent and prevalent impact, WOM remains one of the most effective, yet least understood form of marketing communication, because it is largely beyond the control of marketers.

The advent of the Internet has brought new ways for marketers and consumers to disseminate and receive messages regarding products and provided a new platform for WOM communication. Online WOM is an extension of offline WOM on the Internet. It can be any positive or negative statement made by potential, actual or former customers about a product or company, which is available to a multitude of people and institutions via the Internet. Online communities allow the opinions of a single individual to reach thousands or even millions of other people, and can significantly affect other

consumers' decision about products.

Compared with offline WOM, online WOM has several distinctive features. First, offline WOM and online WOM are different in terms of the quality and mode of transmission (Rogers, 2003; Bass 1969). Offline WOM communication consists of spoken words exchanged with a friend or relative, usually in a face-to-face situation. By contrast, online WOM involves the exchange of personal experiences and opinions through written words transmitted over the Internet, often among strangers in a non face-to-face situation. Written messages often transmit the information in an intact manner and make the content more thoughtful as people spend more time writing their thoughts down. Thus, written communication is usually more logical and maybe more impactful than oral communication.

Second, compared with offline WOM, online WOM has unprecedented scalability and speed of diffusion. Online WOM is more influential due to its speed, convenience, one-to-many reach, and its absence of face-to-face human pressure. By using the Internet, one can seek out the opinion of strangers. This seldom happens in the conventional interpersonal context where opinion providers are embedded in social networks and known to people as credible sources. The escalation in the size of audience and reach is also changing the dynamics of many industries in which WOM has traditionally played an important role. For example, the entertainment industry has found that the rapid spread of WOM is shrinking the life cycles of its products and prompting firms to rethink its pre- and post-launch marketing strategies. In fact, movies are seeing much more rapid changes in revenues between the opening weekend and the following weekends, suggesting that public opinion is spreading faster.

Third, by comparison, online WOM also has greater persistence and measurability than its offline parallel. In offline settings, WOM without a dedicated recorder disappears into the thin air. In online settings, WOM can be recorded and displayed in many public Internet forums, such as review sites, discussion groups, chat rooms, and web blogs. With written comments posted on the Internet, people can seek out the information at their own pace, even long after its initial posting. Since most online reviews of products are kept on the forum for a prolonged period, marketers can accurately measure WOM and its effect by mining information available on these Internet forums (Dellarocas, 2003).

2.2 WOM and New Product Sales

From a theoretical perspective, there exists a strong rationale for the effect of WOM on new product sales. Roger's (2003) theory of diffusion of innovation puts great emphasis on the effect of WOM as a channel of communication among certain groups, particularly among the early majority and late majority, who tend to follow the innovators and early adopters. According to the Bass (1969) Model of Diffusion, in the early stage of a product's life cycle (PLC), innovators are mainly affected by mass media and; after using the new products, they pass their opinions on to others. Later, the others seek out the opinions from innovators and make their own purchase decisions. The coefficient of external influence (mass media) for innovators and that of internal influence (WOM) for imitators can be estimated using the density function of time. Thus, the Bass model suggests that WOM plays a greater role in consumers' purchase of new products beyond the early stage of PLC (Figure 1).

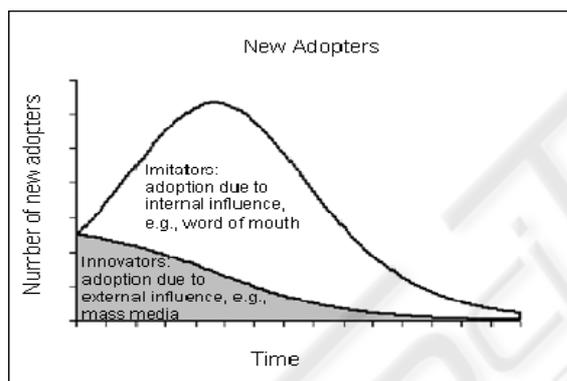


Figure 1: The Bass Model.

As shown in Figure 1, the Bass model assumes that the impact of WOM communication on adoption increases with time early in a product's life cycle and then decreases later on. This model has been shown to have some success in predicting the growth of a wide range of new products based on just a small number of data points. Similar effect of WOM on the diffusion of innovations has been observed in other settings (Reingen et al., 1984). However, Van Den Bulte and Lilien (2001) show that despite the evidence of social contagion, marketing effort, and not interpersonal communication, plays a dominant role in people's adoption decisions. Thus, the findings about the impact of offline WOM on new product sales have been mixed.

2.3 The Effect of Online WOM

In the online environment, consumers can share their experiences, opinions, and knowledge with others via chat rooms, newsgroups, and electronic forums. Three metrics of online WOM have received attention: volume, valence, and dispersion. The rationale behind measuring volume is that the more consumers exchange their views on a product, more consumers will become aware of it. The valence, i.e., the average ratings or the fraction of positive and negative opinions, carries important information about consumers' evaluation of a product and captures the nature of WOM messages. In an online forum, WOM is commonly articulated in the forms of consumer reviews and ratings of products. The majority of past research on online WOM has focused on the use of customer ratings as a revenue-forecasting tool for "new products" such as TV shows, movies, and books (e.g., Dellarocas, 2003). The dispersion or spread of communication measures how fast WOM spreads within and across communities.

Armed with these new measurement tools, researchers have conducted an increasing number of studies using data from online forums and championed the online WOM as the driver of new product sales in the e-marketplace. Online WOM is believed to exert a greater influence on consumer purchases than in the offline environment. For instance, the volume of messages on newly released movies has been found to be a good predictor of their box office success (Liu, 2006). The valence of online ratings posted during a movie's opening weekend has proven to be the most important predictor of its revenue in subsequent weeks (Dellarocas et al., 2007). The dispersion of discussion about weekly TV shows across Internet communities was found to have a positive correlation with the viewership of these shows (Godes and Mayzlin, 2004).

Since researchers have used different measures of online WOM in forecasting new product sales, their findings have not been always consistent. Some scholars find that the volume of reviews has a significant impact on new product sales, but not the ratings (Dellarocas, 2003; Duan et al., 2008; Liu, 2006). On the other hand, a number of studies support the effect of valence or ratings on new product sales (Chevalier and Mayzlin, 2006; Dellarocas et al., 2007). Others consider the dispersion of online discussion having significant explanatory power (Godes and Mayzlin, 2004). Thus, it is not clear which aspect of online WOM, volume, valence and dispersion, exerts a greater

influence on new product sales. Overall, the findings on the effect of different measures of online WOM on new product sales have been inconclusive.

2.4 Theoretical Framework

First, the individual effects of WOM, volume, valence and dispersion need to be estimated more accurately. Second, researchers have so far focused on information and entertainment products, such as books, movies and TV shows, which traditionally attract customer reviews within a short period of their releases. Researchers have not examined the role of online WOM in other consumer products (such as search products) or compared the effect of online WOM across product categories. Third, although the effect of valence of online WOM has been examined, few researchers have investigated the difference between the effect of positive reviews and that of negative WOM on new product sales. Fourth, most studies followed the online WOM and new product sales only for a short period, from weeks to a few months. The short time span does not lend an opportunity to examine the effect of online WOM beyond the initial period. Lastly, but more importantly, researchers have not expended much effort to explain theoretically how online WOM among members of a virtual community affect the sales of new products

With these issues in mind, we draw from the Social Networks Theory and treat the online forums as a social network. The existing research suggests that the weak ties among the members of an informal social network facilitate the flow of information among them (Brown and Reingen, 1987). Online forums with many members, who are perfect strangers to one another, have unprecedented wide reach and frequency of interactions (Brown et al., 2007). Furthermore, consumer reviews are generally perceived as more trustworthy than paid advertising. Thus, online customer reviews should exert a significant effect on new product sales. In this study, we propose an integrative theoretical framework on the role of online WOM in affecting the sales of new products.

First, innovation diffusion studies often examine WOM by the number of adopters and their interactions with the non-adopters. Such interactions (i.e., the volume of WOM) help to create consumer awareness (Bass, 1969; King and Balasubramanian, 1994). Following the same rationale, online WOM (i.e., reviewers by adopters) can also influence the opinions of other consumers and albeit new product sales. Second, the rationale for the effect of valence is straightforward: positive WOM promotes the

perceived quality and/or value of a new product whereas negative WOM dampens a product's reputation (Liu, 2006). Third, the valence of online consumer reviews (i.e., the ratings of the products) has a higher level of diagnosticity and is a more influential factor than the volume of online consumer reviews on new product sales. Fourth, negative cues tend to attract more attention and are weighed more heavily than positive cues (Kanouse and Hanson, 1972). Negative online customer reviews are perceived as more diagnostic albeit more influential in consumer decision making and have a greater impact on new product sales than positive information.

Fifth, based on their nature, products can be classified as search or experience goods. Search products such as consumer electronics are usually evaluated by instrumental evaluative cues (i.e., the technical or performance aspects of a product). Experience goods, such as recreational services, are difficult to describe using specific attributes, and consumers need to directly experience the products to evaluate their quality based on their personal contacts with the products and their idiosyncratic experiences (Weathers et al., 2007). The attributes of search products are often standardized and available at online stores as well as the e-commerce sites and frequently discussed in the product advertisements and reviews. The attributes of experience products are, however, not as accessible in the online environment, thus making the opinions and recommendations of other consumers more valuable to the potential buyers. Therefore, online product reviews in terms of both volume and valence have greater effect on consumer purchases for experience products than for search products.

According to the Bass Diffusion Model, consumers that adopt a new product in the early stage (the introduction stage) of PLC are mostly the innovators who are affected by external influence such as mass media. The model also suggests that in the later stages of PLC, the adoption of new products speeds up as an increasing number of imitators begin to adopt the new product, and that the imitators or followers are mostly affected by internal influence such as WOM. Therefore, WOM plays a more important role in new product adoption beyond the initial introduction stage (Bass, 1969). In the online environment, WOM travels even faster and spreads more widely, making it even a stronger driving force for new product sales. Therefore, due to the accelerated dissemination of WOM across the online forums, the effect of WOM on the new products sales is expected to be stronger beyond the introduction stage.

3 METHOD

The WOM data were collected from Amazon.com, which sells a variety of consumer products from its online store and has been used in a number of studies on B2C e-commerce (e.g., Liu, 2006). Amazon.com serves as a good setting for studying the effect of online WOM on new product sales. First, it is one of the most popular online shopping websites with millions of registered members and frequented by non-members. It requires no fee for joining and helps reduce any possible bias in the demographic composition of the Web site's visitors. Second, Amazon has been well-known for its extensive customer review system. Anybody including non-members can post, browse, and comment on a product review and rating. Third, the structure of the Web site is well designed with all the relevant information (prices, sales ranks, customer reviews and ratings of products) conveniently displayed so that finding and collecting information is straightforward, thus reducing possible errors during data collection. Most importantly, the release dates for new products are displayed prominently by the calendar dates. WOM messages (i.e., reviews and replies) and ratings are archived and indexed by the dates of their original postings. All the information including the sales ranks of products and the number of reviews are updated frequently. Thus, it is possible to collect the data on customer reviews and other information and track the changes in the product data on a continuous basis.

Existing studies of online WOM have largely focused on information or entertainment products such as books, movies and TV programs. Although these products can be classified as experience products, their life cycle varies from a short period of concentrated sales since the release dates (e.g., movies) to a long time (TV series). While most previous studies of online WOM focus on one product category (movie or book), this study incorporates product category and includes two different types of products: search vs. experience products. It is important that the data from both product categories be from the same source. This is another important reason for collecting the data from Amazon.com. In this study, we use video games, an entertainment product, as the category for experience products. For search products, we choose consumer electronics. These two types of products have been used to represent experience and search products in previous studies (Weathers et al. 2007). Mostly importantly, these two product types are stand-alone categories on Amazon.com, which posts

the sales rank data of products based on these categories. In other words, the sales rank and the other relevant data are category-adjusted.

We tracked the online consumer reviews in terms of volume and valence, sales ranks and related information of the new products from these two product categories on a weekly basis from August 2007 to April 2008 for 9 months, which are sufficient to examine the relevant data beyond the introductory stage of product life cycle. Starting on August 1st, 2007, we identified each new product from these two categories released on Amazon.com, where the product release dates largely coincided with the offline release dates. For this and each of the following weeks, we downloaded all the relevant information for these products and saved them in a data archive for data input and verification. Then, the data including sales ranks, number of reviews, average and frequencies of ratings, etc., were extracted from these saved webpages and input into a database. Thus, we have altogether a maximum of 36 weeks of data from the new products in these two categories.

The dependent variable in this study is a new product's sales. Amazon.com does not disclose the actual sales volumes for its products. Instead, we use the sales ranks of the products posted by Amazon.com as a proxy of actual sales. The sales ranks are category-adjusted and inversely related to sales. That means that the top-selling product has a sales rank of one, and relatively slow-moving products are assigned higher sequential ranks. According to Chevalier and Mayzlin (2006), the relationship between the sales rank and the actual volume of book sales on Amazon can be approximately describe by: $\ln [\text{Sales}] = \beta_0 - \beta_1 * \ln [\text{SalesRank}]$, β is measured in two time intervals. The relationship between $\ln (\text{sales})$ and $\ln (\text{ranks})$ is approximately linear. Thus, in lieu of sales data, the log of sales rank can be the appropriate dependent variable. Because sales rank is a log linear function of sales with a negative slope, we use $-\log [\text{SalesRank}]$ as the dependent variable.

Independent variables include the volume and valence of online consumer reviews. Based on Chevalier and Mayzlin (2006), we use the number of reviews to measure the volume of online consumer reviews. Following Dellarocas et al. (2007), we use the average ratings, i.e., average number of stars that the reviewers assigned (on a scale of one to five stars, with five stars being the best) to capture the valence of online consumer reviews. Moreover, the frequencies of numeric ratings are also recorded to generate the percentage of positive and negative ratings. Moderating factors include product type

(search vs. experience products) and the stage of PLC. A product's stage of life cycle is defined by a product's week age (the number of weeks since its release).

Control variables include product category, product subcategory, list price, price promotion (discount), other stores that provide such products (but still sold through Amazon.com), and availability of free shipping. We include the product subcategories to control for the subcategory variations to minimize any confounding effect. Search products have nine subcategories including electronic accessories, cameras, televisions, MP3 players, computers, office electronics, GPS, equalizer and optics. Experience products have the following subcategories: Playstation 3, Xbox360, Nintendo Will, Playstation 2, Xbox, GameCube, Mac Games, Sony PSP, Nintendo DS, and Game Boy Advance.

4 RESULTS

During the nine month period, we collected the data for 417 new products: 165 search products (consumer electronics) and 252 experience products (video games). We excluded those products that had no sales data or too much missing data. The final sample contains 332 new products, 131 search products and 201 experience products. Within their own category, the sales ranks for video games range from 12 to 131,316, while those for consumer electronics range from 2 to 378,314. The maximum volume of reviews includes 274 positive reviews and 38 negative reviews for videogames, compared with 543 positive reviews and 63 negative reviews for consumer electronics. Standard deviation of the volume of reviews for video games is 34.49 compared with 32.46 for consumer electronics. The average rating for video games is 3.15, much higher than that for consumer electronics (1.85).

Since cross-sectional analysis may suffer from the cohort bias, we conduct panel data analysis for all the hypotheses. Hierarchical regressions are used to test the effects of the predictor variables.

First, we regress the dependent variable (sales) on all the covariates (shipping, price, promotion, other stores and product type). In step two, we add the predictor variables including volume of online reviews and valence (ratings). Table 1 shows that this regression model has a good fit of the data (adjusted R-squared=0.596, F =1576.83, $p \leq .001$). The beta coefficient of volume of consumer reviews is 0.199 ($p \leq .001$) while the coefficient of the valence of consumer reviews is 0.367 ($p \leq .001$).

Table 1: The Effects of Volume and Valence.

Model Fitness/Variables	Results/Coefficients
R-Square	0.597
Adjusted R-Square	0.596
F Value	1576.83
Sig. ($p \leq$)	0.001
Shipping	0.226***
Price	0.071***
Promotion	0.092***
Other Store(OS)	-0.039***
Product: Experience	0.179***
Volume	0.199***
Valence	0.367***

Note: ***: Sig. \leq 0.001

Thus, both volume and valence of online reviewers have a significant positive effect on new product sales, but valence has a stronger impact than volume.

Regarding the effect of negative reviews versus that of positive reviews on new product sales, we enter the percentage of positive reviews and that of negative reviews. Table 2 shows that this regression model is significant (adjusted R-squared=0.525, F =1179.06, $p \leq .001$). The coefficient of the percentage of negative reviews is 0.347 ($p \leq .001$), while the coefficient of the percentage of positive reviews is 0.158 ($p \leq .001$). Thus, the effect of negative reviews on new product sales is greater than that of positive reviews. But the coefficient of negative reviews is positive rather than negative, similar to the finding of a previous study (Liu, 2006).

Table 2: The Effects of Positive and Negative Reviews.

Model Fitness/Variables	Results/Coefficients
R-Square	0.525
Adjusted R-Square	0.525
F Value	1179.06
Sig. ($p \leq$)	0.001
Shipping	0.291***
Price	0.102***
Promotion	0.122***
Other Store(OS)	-0.054***
Product Type: Experience	0.151***
% of Negative Reviews	0.347***
% of Positive Reviews	0.158***

Note: ***: Sig. \leq 0.001

Then, we run separate regressions for search products and experience products. The parameter estimates of volume and valence for experience products (0.379 and 0.376) are much higher than those for search products (0.282 and 0.147). Then we used Chow's test to compare the regression models of these two types of products. The F-value

for the Chow's test is 316.81 ($p \leq 0.001$), suggesting that the two regression models are significantly different from each other. The t-tests for the parameter coefficients of the two models are also significant, suggesting that both volume and valence have significantly greater effects on new products sales for experience products than for search products. Meanwhile, it is interesting to note that while volume and valence have similar effects (0.379 and 0.376) for experience products, volume has a much stronger impact on search products than valence (0.282 vs. 0.147).

Table 3: The Fixed Effect Models for the Effect of Volume of Reviews.

Model Fitness/Variables	Search Products	Experience Products
R-Square	0.104	0.163
F Value	24.1	129.7
Sig. ($p \leq$)	0.0001	0.0001
Shipping	-0.764	0.048
Price	0.001	0.006*
Promotion	0.347***	0.052**
Other Store (OS)	-0.303	
Subcategories	omitted	omitted
Volume	0.043***	-0.023***
Valence	0.044***	0.0175***
Week age	0.006***	-0.013***
Volume*valence	-0.009***	0.004***
Week age*volume	-0.002***	0.00003***

Note: *: Sig. ≤ 0.05 , **: Sig. ≤ 0.01 , and ***: Sig. ≤ 0.001

Regarding the effect of online WOM over time, we use a separate fixed effect model for experience products and search products. We enter all the control variables, predictor variables, and their interactions. Table 3 shows that week age (the number of weeks since the release date) has a positive effect on the sales of search products ($\beta = 0.006$), while its effect on experience products is significantly negative ($\beta = -0.013$), perhaps reflecting the shorter product lifecycle of video games. As for the effects of the volume of online reviews over time, the interaction between week age and volume of consumer reviews is significantly negative ($\beta = -0.002$) for search products, suggesting the effect of online WOM decreases over time. This finding is contradictory to our expectation. However, for experience products, the interaction between week age and volume of online reviews ($\beta = 0.00003$) is very small yet significantly positive, which means the effect of online WOM on new experience product sales increases with time. However, the coefficient of volume turns out to be negative (-0.023). Since the variance inflation factors (VIF) of

all variables for the collinearity diagnostic tests are below 10, we cannot attribute these findings to the presence of multicollinearity in this model.

5 CONCLUSIONS

The findings provide strong support for the effects of online customer reviews (volume and valence) and product type (search vs. experience products) on new product sales and to some extent the effect of the stage of PLC (Table 4). The results suggest that the two measures of online consumer WOM, volume and valence, have a significant positive impact on new product sales and support the findings of previous studies (Dellarocas, 2003; Godes and Mayzlin, 2004). We also find that the effect of valence of consumer reviews on new product sales is greater than that of volume of consumer reviews. Moreover, negative WOM influences new product sales more than positive WOM, confirming the strong effect of the negativity bias in that online consumers pay more attention to negative WOM than to positive WOM, even though there are generally more positive reviews than negative ones (Kanouse and Hanson, 1972). Despite the efforts to minimize any potential collinearity problem, the sign of online negative WOM turns out to be positive. The same finding was also reported in a previous study (Liu, 2006). There may exist several explanations for this counter-intuitive finding. The inoculation theory suggests that once the bad news about a product is released to the public, its negative effect is no longer detrimental and may not alter people's attitudes significantly (McGuire, 1961). The winners-take-all phenomenon is another possible reason in that popular products attract a large number of both positive and negative reviews than the less popular ones.

More importantly, our findings indicate that product type moderates the relationship between online WOM and new product sales. The volume of online consumer WOM influences the sales of experience products more than that of search products. Similarly, the valence of consumer WOM influences experience products more than search products. Lastly, the greater influence of online WOM in the late stage of PLC is weakly supported only for the experience products. The lack of support for this hypothesis could be due to several reasons. According to Amazon.com, sales rank, unlike actual sales data, is not cumulative, but the ranking of a product based on weekly sales adjusted by cumulative sales. The lack of reliable data on

Table 4: Summary of Results.

Independent Variables	Effect on Dependent Variable
Volume	√
Valence	√
% of Negative Reviews	√
% of Positive Reviews	√
Product Type	√
Product Lifecycle (PLC)	Partial support

new product sales may lead to the poor results.

The findings reveal the significant effect of WOM including the multiple indicators of WOM including volume, valence and the ratio of negative vs. positive reviews on new product sales in the online setting. The findings of this study indicate several interesting practical directions for practitioners. Marketers need to observe and respond to online WOM communication actively. They should develop strategies to promote consumer advocacy, to encourage consumer reviews and other forms of WOM, and hopefully generate positive reviews when they launch new products. Given the speed and wide reach of online WOM, the benefit of satisfied customers as the best advertisement can be amplified many times. This applies to both experience and search products, but more so for experience products, which are subject to greater influence from online WOM because experience products have less tangible attributes than search products.

Positive consumer reviews can help reduce the uncertainty and risks associated with purchasing new products for potential buyers. Marketers may incorporate valuable consumer feedback, especially the negative WOM, in the development and marketing of new products. Meanwhile, it is not necessary for practitioners to discourage and manipulate the negative reviews in the forums, because according to our finding, online negative reviews may not directly hurt new product sales as long as the overall effect of WOM is positive. Finally, the effect of online WOM on new product sales is perhaps more influential beyond the introductory stage of a product's life cycle for experience products, calling for greater efforts to monitor and respond to online WOM.

REFERENCES

- Bass, F.M., 1969. A new product growth model for consumer durables. *Management Science*, 15(5), 215-227.
- Brown, J., Broderick, J.A., and Lee, N. 2007. Word of mouth communication within online communities: conceptualizing the online social network. *Journal of Interactive Marketing*, 21(3), 2-10.
- Brown, J.J and Reingen, P.H. 1987. Social ties and word-of-mouth referral behavior. *Journal of Consumer Research*, 14(3), 350-362.
- Chevalier, J.A. and Mayzlin, D. 2006. The effect of word of mouth on sales: online book reviews. *Journal of Marketing Research*, XLIII, 345-354
- Dellarocas, C. 2003. The digitization of word of mouth: Promise and challenges of online feedback mechanisms. *Management Science*, 49(10), 1407-1424.
- Dellarocas, C., Zhang, X. and Neveen, F.A. 2007. Exploring the value of online product reviews in forecasting sales: The case of motion pictures. *Journal of Interactive Marketing*, 21(4), 23-45.
- DoubleClick. 2004. *DoubleClick's Touchpoints II: The Changing Purchase Process*. March.
- Duan, W., Gu, B., and Whinston, A.B. 2008. Do online reviews matter? - An empirical investigation of panel data. *Decision Support Systems*, 45(4), 1007-1016.
- Godes, D. and Mayzlin, D. 2004. Using online conversation to study word-of-mouth communication. *Marketing Science*, 23(4), 545-561.
- Herr, P.M., Kardes, F.R., and Kim, J. 1991. Effects of word-of-mouth and product-attribute information on persuasion: An accessibility-diagnostics perspective. *Journal of Consumer Research*, 17(4), 454-462.
- Kanouse, D.E. and Hanson, L.R. 1972. Negativity in evaluations. In E. E. Jones et al. (Eds.), *Attribution: Perceiving the Causes of behavior*. Morristown, NJ: General Learning Press.
- King, M.F., and Balasubramanian, S.K. 1994. The effects of expertise, end goal, and product type on adoption of preference formation strategy. *Journal of the Academy of Marketing Science*, 22(2), 146-159.
- Liu, Y. 2006. Word of Mouth for movies: Its dynamics and impact on box office revenue. *Journal of Marketing*, 70, 74-89.
- McGuire, W.J. 1961. The effectiveness of supportive and refutation defenses in immunizing defenses. *Sociometry*, 24, 184-197.
- Reingen, P., Foster, B., Brown, J.J., and Seidman, S. 1984. Brand congruence in interpersonal relations: A social network analysis. *Journal of Consumer Research*, 11, 1-26.
- Rogers, E.M. 2003. *The Diffusions of Innovations*, 5th ed., New York: The Free Press.
- Van den Bulte, C. and Lilien, G. 2001. Medical Innovation revisited: Social contagion versus marketing effort. *The American Journal of Sociology*, 106(5), 1409-1436.
- Weathers, D., Sharma, S., and Wood, L.S. 2007. Effects of online communication practices on consumer perceptions of performance uncertainty for search and experience goods. *Journal of Retailing*, 83(4), 393-401.