THE INFLUENCES OF NEGATIVITY AND REVIEW QUALITY ON THE HELPFULNESS OF ONLINE REVIEWS

Completed Research Paper

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Abstract

Building on the interpersonal evaluation theory in social psychology, this study explores the existence of a negativity bias in evaluating the helpfulness of online reviews, i.e., whether users perceive a negative review to be more helpful than a positive review. An analysis of 7659 book reviews from Amazon.co.uk shows that a negativity bias disappears after controlling for moderating factors related to evaluation quality such as readability and length. The finding demonstrates that the negativity bias suggested by the social psychology literature is not readily applicable to consumer-generated online reviews. The study contributes to the theorization of word-of-mouth by exploring the qualitative characteristics of consumer-generated reviews in addition to their valence. The study also makes a theoretical contribution to information systems research by introducing and extending the interpersonal evaluation theory to online review research.

Keywords: Negativity bias, word-of-mouth, online reviews, interpersonal evaluation theory

Introduction

With the proliferation of consumer-generated product reviews on the Internet, there is a growing body of academic literature studying the influences of these reviews on product sales. Prior work in this area, however, is relatively fragmented and the empirical findings are sometimes inconclusive or conflicting (Dellarocas 2003; Hu et al. 2008). This is due to a variety of reasons including the complexity of consumer decision marking (Park et al. 2007; de Valck et al. 2009), the lack of accurate sales data (Chevalier and Mayzlin 2006), the difficulty of performing qualitative analyses with large text corpora (Ghose and Ipeirotis 2009), and the variations in products, consumers, and online shopping contexts (Forman et al. 2008; Huang et al. 2008; Weathers et al. 2007).

In light of the challenges in establishing the direct link between online reviews and sales, recent research has begun to pay attention to the value of online reviews from the side of the consumer. Indeed, if we expect online reviews to influence consumer attitudes towards products, which in turn lead to purchase decisions, we first need to know what a consumer thinks of a review in terms of its value in the process of making a purchase decision. The value of customer reviews is particularly prominent for experience goods (i.e., products not easily assessed prior to consumption), as consumers are more likely to rely on the experiences of others to judge the product quality (Nelson 1970; Klein 1998). In online shopping environments where attributes of experience goods are even more difficult to evaluate, customer feedback can add great value to e-business by helping online shoppers increase decision precision and reduce perceived risk (Kim et al. 2008). For this reason the scope of this paper will be confined to experience goods and focuses on the factors that influence the consumer's positive or negative evaluation of an online review.

A few recent studies have explored the helpfulness of online customer reviews (Danescu-Niculescu-Mizil 2009; Mudambi and Schuff 2010), but we still know very little about why a customer perceives a particular review to be helpful or not helpful. An important and interesting research question in this context is whether online consumers perceive negative reviews to be more helpful than positive reviews. Such a "negativity bias" would have immediate consequences for online marketing managers and online shopping system developers.

Building on the interpersonal evaluation theory in social psychology, this study examines a negativity bias in evaluating the helpfulness of online reviews. An analysis of 7659 book reviews from Amazon.co.uk provides evidence that online consumers perceive negative reviews to be more "helpful" than positive reviews but only if we do not take into account the length and readability of the reviews. When controlling the factors related to review quality such as length and readability the negativity bias no longer holds.

In the following sections, we present the theoretical foundation, hypotheses, and results of the empirical analysis.

Theory and Hypotheses

In order to develop a theoretical framework for evaluating online reviews, it is helpful to consider online reviews as a digital form of word-of-mouth (WOM). It is not uncommon to see the term online word-of-mouth to refer to consumer-generated product reviews and other types of consumer-to-consumer communications on the Internet (Dellarocas 2003; Godes and Mayzlin 2004). Although the differences between the traditional WOM and the online WOM are apparent (e.g., communication channel, format, and scale), prior work on WOM in the marketing literature may still provide valuable insights as digital technologies have not changed the nature of online WOM as a potential driver of consumers' actions.

One of the consistent themes in marketing research of WOM is the mixed effects of negative WOM (e.g., Berger et al. 2010; Herr et al. 1991; Richins 1983). Although it seems straightforward to reason that negative WOM will hurt product sales and brand evaluation, past research has shown conflicting findings with regard to the association of negative online reviews and sales. For example, Basuroy et al (2003) found that unfavorable reviews from film critics decrease box office revenue, a finding supported by Dellorocas et al.'s (2007) analysis of user reviews posted on *Yahoo! Movies* discussion boards. Surprisingly enough, using the same *Yahoo! Movie* data source, both Liu (2006) and Duan et al. (2008)

contend that the volume of user postings, rather than the valence of reviews, had significant impact on movies' box office revenues. A similar contradiction also exists in the studies on Amazon book reviews: while Chevalier and Mayzlin (2006) show that one-star reviews on Amazon.com hurt book sales, Forman et al. (2008) did not find a significant relationship between review valence and sales.

The inconsistencies in these findings suggest that we need to look more closely at the complexity of WOM and its consequences, rather than focusing on the hypothetical, direct link between reviews and revenue potential. Recent studies have begun to ask the question of "What do consumers think of online reviews and why?" instead of the question of "How do online reviews influence consumers?" For example, both Mudambi and Schuff (2010) and Ghose and Ipeirotis (2010) turn to the qualitative characteristics of reviews, such as review depth and subjectivity, to explore what kind of reviews are perceived more helpful to consumers. Forman et al (2008) suggest that consumers use reviewer disclosure of identity information in electronic markets to supplement product information when evaluating the value of online reviews. By comparing review data from four national Amazon sites (U.S., U.K., Germany, and Japan), Danescu-Niculescu-Mizil et al. (2009) note the national differences between reviews collected from different Amazon sites in terms of review variance and review helpfulness.

Although negative WOM has been extensively discussed in the marketing literature, to date little work considers the relationship between negativity of a review and the perceived value of the review to an online consumer. The theoretical framework in this paper uses **interpersonal evaluation theory**, a social psychological theory says that negative evaluators tend to be perceived as more intelligent than positive evaluators (Amabile and Glazebrook 1982; Amabile 1983; Gibson and Oberlander 2008). This theory is in accordance with a wider theoretical account of negativity bias in psychology literature, where scholars believe that there is a general bias, based on both innate predispositions and experience in humans to give greater weight to negative entities. Rozin and Royzman (2001) provide a comprehensive review of this stream of research.

In the context of interpersonal evaluation theory, negativity bias refers to a perceptual bias toward human evaluators, not the information objects produced by the evaluators. The theory suggests that a negative assessment of a stimulus object is likely to arouse a favorable impression of the evaluator's intelligence and "knowledgeability", although he or she might be less likable (Folkes and Sears 1977). A plausible explanation to the negativity bias is that negative assessments are perceived as more diagnostic and therefore contain more distinctive information than positive assessments. By the same token, positivity expressed by an evaluator infers the person's incompetence in judging things (Skowronski and Carlston 1989). This bias is strengthened when the quality level of information contained in the negative assessment is high – that is, when the assessment is well-reasoned and elaborated at some length (Ambile 1983).

To extend the interpersonal evaluation theory to evaluating information objects, we postulate that the negativity bias also exists in people's perception toward information objects such as online customer reviews. That is, negative reviews are more likely viewed as intelligent and valuable in terms of providing useful information than positive reviews. A theory of information diagnosticity (Feldman and Lynch 1988; Herr et al. 1991) says that a piece of information is perceived as useful if it helps the user reduce uncertainty in making choices. Prior research in marketing shows that consumers tend to search for negative WOM in a situation in which they lack information and experience (Herr et al. 1991). The alleged intelligence incorporated in negative comments implies new information that may help reduce the uncertainty of the consumer's decision making (Dowling and Staelin 1994; Kim et al. 2008).

Most customer-generated product reviews posted on retail websites, however, are not purely negative or purely positive. In the context of product reviews on Amazon - the largest online retailer, a review consists of two parts: the textual content of the review and a numerical score (in the form of number of stars) indicating the overall valence of the review. The star rating appears at the beginning of each review, and ranges from 1 to 5 stars (1 being extremely negative and 5 extremely positive). Reviews with 2, 3, or 4 stars usually indicate a middle-ground with mixed attitudes. The interpersonal evaluation theory does not consider this fine granularity of negativity, and academic research on the two-sidedness of product reviews is far from conclusive. For example, Mudambi and Schuff (2010) found that for experience goods on Amazon reviews with extremely high or low star ratings were associated with lower levels of helpfulness than reviews with moderate ratings, but Forman et al. (2008) found that book reviews on Amazon with moderate ratings were perceived as less helpful than extreme reviews. From the perspective

of information diagnosticity, we argue that, compared to extremely negative reviews, reviews with mixed attitudes are likely to provide more balanced evaluations of the products and offer readers more diagnostic information about the products' pros and cons. Hence, we hypothesize:

H1. *There is a negativity bias in evaluating the helpfulness of customer reviews. However, extremely negative reviews are perceived as less helpful than moderately negative reviews.*

Of course, the valence of reviews is not the only factor that determines the perceived helpfulness of the reviews. The potential value of a review only materializes when the information contained in the review is credible and easily accessible to a general audience. A well-written review is likely to contribute to the favorable perception of helpfulness because it reduces a reader's cognitive effort in information consumption and at the same time increases the credibility of the review. Research in information presentation, for example, has long demonstrated that the delivery of information, such as clarity and detail of writing, has significant impact on reader's perception of the credibility of information (Fogg et al. 2003; Metzger 2007). In developing the interpersonal evaluation theory, Amabile (1983) also considers the quality dimension of evaluations and states that the alleged intelligence in a negative evaluator becomes more credible if the negative judgment is elaborated at some length. In the context of online product reviews, a well-written and substantive review is likely to provide more product details in a more convincing way. Recently, Ghose and Ipeirotis (2010) found that the readability and linguistic correctness of Amazon reviews are associated with the helpfulness votes on the reviews: an increase in the readability of reviews has a positive impact on perceived helpfulness whilst an increase in the proportion of spelling errors has a negative impact on helpfulness. Mudambi and Schuff (2010) examined the factor of review depth (measured with the proxy variable "word count") and found that in-depth (i.e., lengthier) reviews generally increase the helpfulness of the review for both search goods and experience goods. This leads us to hypothesize that the qualitative characteristics of reviews may attenuate the negativity bias in people's evaluation of the review helpfulness:

H2. *The qualitative characteristics of reviews moderate the effect of negativity bias in evaluating the helpfulness of reviews.*

H2a. *Reviews with high readability are perceived as more helpful than those with low readability.*

H2b. *Long reviews are perceived as more helpful than short reviews.*

Figure 1 provides a graphical depiction of our theoretical framework.

Figure 1. Research Model
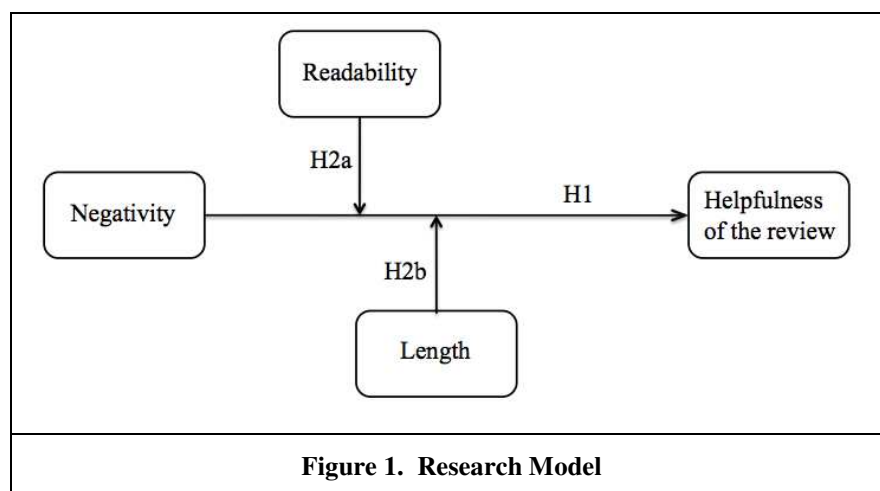
Data Collection

We chose the canonical example of e-business, Amazon, as our research site for obtaining the empirical data. We focused on the Books section of the Amazon.co.uk website because, firstly, books are well-known

examples of experience goods, and secondly, Amazon book reviews are a common source of research in prior WOM literature, which makes our study more comparable to others in the field. Certain genres of books are true experience goods, in the sense that only a complete reading of the book will allow the reader to provide a full evaluation of the experience. This is notably the case for the genres Romance and Crime & Mystery, and also to a lesser extent for the genre Science Fiction. Based on this rationale, we collected customer reviews from books under these three categories.

Using an automated crawler over the Amazon provided web services API, the sampling took place in the period between 28 May 2010 to 16 June 2010 and yielded a collection of 18,672 customer reviews for 852 distinct book items (after cleaning up duplicates such as hardcover and paperback for the same book). We then excluded the cases with missing Amazon Standard Identification Numbers (ASIN) and reviews with less than 5 helpfulness votes (following Kim et al. 2006). The final dataset we used for further analysis contained 7659 customer reviews for 776 books.

For each review, we gathered the numerical valence data (on the 1-5 star scale that Amazon provides) as well as the review text. The level of negativity of each review is represented by the numerical star rating (1-5) summarizing the overall valence, with 1 being extremely negative and 5 extremely positive. As discussed earlier, two qualitative constructs are measured: readability and length. The length of review is the number of words contained in each review and was calculated by a computer program in our data collection process. The readability of the review was measured by the Flesch Reading Ease (FRE), a popular readability index designed to measure the easiness of comprehension on a piece of text of standard English (Flesch 1948; Kincaid et al. 1975). In addition to FRE, we used several other measures to assess a review's readability, including Coleman-Liau index and Automated Readability Index. To calculate the readability score the most recent version of the unix "style" command was used in order to safeguard against issues of text tokenization. A post-hoc bivariate correlation test showed that these index scores are highly correlated. To prevent multicollinearity in the subsequent regression analysis, we excluded the other measures and only use the FRE scores.

The formula that we used to derive the FRE score for each individual review was as follows:

FRE = 206.876 − 1.015(total_words/total_sentences) - 84.6(total_syllables/total_words)

The constants used in the formula follow from the standard source entropy of the English language. We used the standard GNU style command in order to get an accurate measure of the FRE variables, the number of the total syllables (total_syllables) and the number of total words (total_words) in a given review text. The FRE scores are subject to an interval censoring technique and range from 0 to 100, with a higher score indicating easier reading. As a rule of thumb, a text with an FRE score of 0-30 is considered very difficult and a score of 60-70 indicates a right level of readability for the general public.

The helpfulness of review, the dependent variable in our research model, is quantified through a feature on Amazon at the bottom of each review where readers may evaluate the review by answering "Yes" or "No" to the question, "Was this review helpful to you?" The results of this voting appear at the top of each review in the form of "[# of "Yes" votes] out of [# of all votes] found the following review helpful" (see the screen capture in Figure 2 for an example). In a word, we use the share of evaluators who found the review to be helpful as an approximation for helpfulness.

Data Analysis and Results

Table 1 provides the descriptive statistics for the sample. The average customer rating of books is slightly positive (*M* = 3.71, *SD* = 1.49). At the same time, the evaluation of the helpfulness of the reviews tends to be positive, with nearly 70% voters found a particular review to be helpful.

The length of the reviews varies greatly from a simple one word to 1860 words. The majority of reviews, however, are less than a few hundred words (*M* =176, *SD* =155). The average FRE score after applying an interval censoring procedure (0-100) is 69.12, which suggests that the reviews have a standard readability and are appropriate for general adult readers.
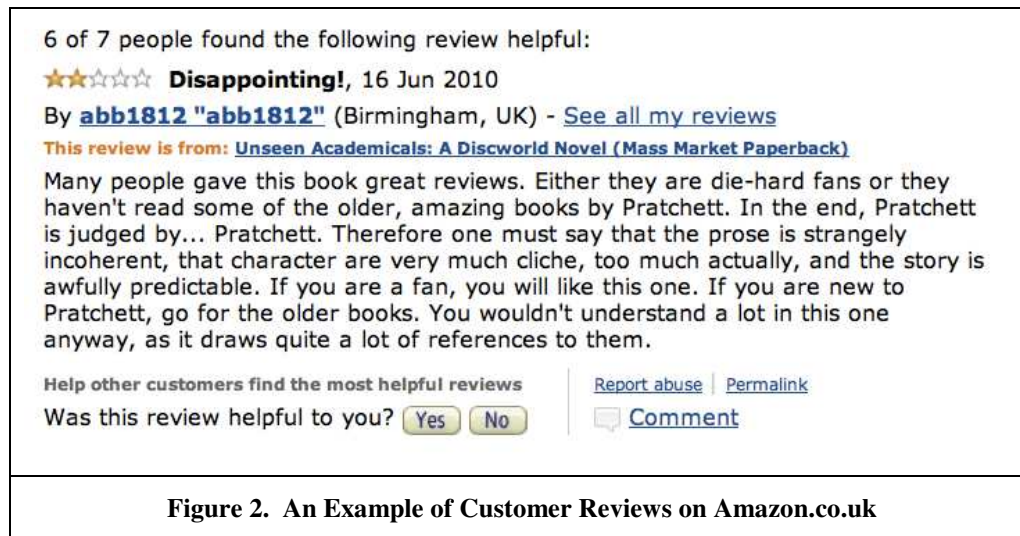
Figure 2. An Example of Customer Reviews on Amazon.co.uk

Table 1. Descriptive Statistics				
Variables	Minimum	Maximum	Mean	SD
Rating	1	5	3.71	1.49
Total votes	5	401	14.26	16.06
Number of "helpful" votes	0	387	10.33	14.51
Ratio of "helpful" votes	.00	1.00	.694	.25
Number of words	1	1860	175.89	155.17
FRE readability index	0	120	69.12	14.17

Note: N = 7659

In our research model (Figure 1), the dependable variable "helpfulness of review" is measured by the ratio of helpful votes to total votes received for a review. The independent variable negativity of review is the overall valence of the review, quantified by Amazon's 5-star rating scale. According to H1, we expect review helpfulness to decrease as the star rating increases, but 1-star reviews (extremely negative) are perceived as less helpful than 2-, 3-, and 4-star reviews (moderately negative). This implies a concave-shaped relationship between rating and helpfulness. Hence, we introduce a quadratic term $rating^2$ and estimate a curvilinear model:

Model 1: *Helpfulness $= \beta_0 + \beta_1 \, rating + \beta_2 \, rating^2 + e$*

We interpret a positive coefficient on β_1 and a negative coefficient on β_2 as support for H1. To test H2, we estimate a model that includes the interactions between rating and the two qualitative measures (readability and length). Again, the length of a review is measure by the number of words in that review, and the readability is measured by the text's FRE score.

Model 2: *Helpfulness $= \beta_0 + \beta_1 \, rating + \beta_2 \, rating^2 + \beta_3 \, rating * FRE + \beta_4 \, rating^2 * FRE + \beta_5 \, rating * word\_count + \beta_6 \, rating^2 * word\_count + e$*

We used multiple linear regression with ordinary least square (OLS) estimation to analyze the models. The results are shown in Table 2 and Table 3.

The regression results showed that the second model was an improvement over the first one with a significant increase of overall fit R^2 (from 0.143 to 0.188). More interestingly, while Model 1 supports H1 by producing a positive coefficient value on rating and a negative coefficient on rating^2, the quadratic term rating^2 lost its statistical significance (p = 0.186) after taking into account the interactions between the review rating and the review length and readability in Model 2. However, the linear relationship between rating and helpfulness remained significant ($p < 0.01$) in Model 2 and all four interactions were significant ($p < 0.01$), which supports the hypothesized moderating effects of qualitative characteristics in H2.

Table 2. Summary of Regression Models					
Model	R	R²	Std. Error	ANOVA	
				F	Sig.
1	.378	.143	.23532	638.535	.000
2	.433	.188	.22918	294.327	.000

Table 3. Regression Model Coefficients				
Model	Variables	Coefficient	t	Sig.
1	(Constant)	.422	28.440	.000
	Rating	.537	8.310	.000
	Rating²	-.162	-2.508	.012
2	(Constant)	.460	31.234	.000
	Rating	.607	4.712	.000
	Rating²	-.226	-1.318	.186
	Rating x FRE	.574	4.277	.000
	Rating² x FRE	-.490	-2.806	.004
	Rating x WordCount	.584	7.577	.000
	Rating² x WordCount	-.449	-5.548	.000

In sum, the regression results reject the hypothesized negative bias in our sample as the downwards slope disappeared after factoring in the review quality variables. On the other hand, the results provide strong support for H2, which hypothesizes that readability and length moderate the negativity bias in people's evaluation of online review helpfulness.

Discussion and Conclusion

Interpersonal evaluation theory suggests that negative evaluations tend to be perceived as more valuable than positive evaluators. Seeking an explanation to the negativity bias, some researchers found that people's psychological anchor for value judgment tends to be on the positive end of the judgment scale and tends to be moderate in extremity (Skowronski and Carlston 1989). That is, people are inclined to be

nice and give more positive evaluations when judging something or someone. This is supported by our sample in which average customer rating is leaning toward positive (mean = 3.71, see Table 1). A recent study by Hu et al. (2009) has also revealed a bimodal J-shaped distribution on product ratings on Amazon.com, with a positive rating being most common.

Precisely because people generally expect others to be moderately positive, negative information is likely to be perceived as novel and more valuable (Fiske 1980). But after we took into account the moderating effects of review quality, we were not able to reproduce the negativity bias in our sample of customer reviews. Our study shows that the valence of a customer review is less important compared to the quality of information provided in that review. From the perspective of information diagnosticity, our finding confirms the critical importance of information quality in determining the usefulness of a piece of information for consumers. It is also logical to expect that the richer the information a review contains, the more helpful it is to other consumers. The negative information might grab people's attention more easily, but attention alone does not guarantee the usefulness of the information.

In addition, our regression analysis suggests that the overall customer rating of a book on Amazon is positively correlated with the helpfulness of the review. Such correlation is even stronger after the model takes into account the interaction effects between rating and quality. This indicates that satisfied customers are motivated to write well-composed and more in-depth reviews, while unhappy customers use the reviews to vent their frustration with less transferable information.

This study has implications for both theory and practice. First, the empirical results of the study show that negativity bias documented in the social psychology literature may not be readily applicable to consumer-generated product reviews. The study makes a theoretical contribution to information systems research by introducing moderating factors related to evaluation quality from the domain of social psychology. It also contributes to the theorization of WOM by exploring the qualitative characteristics of consumer-generated reviews in addition to their valence.

Second, the study highlights the fact that the qualitative characteristics of a customer review is critical in determining the review's helpfulness to consumers. An important point worth restating is that prior research in the marketing field tends to focus on the effect of negative WOM on customers' brand evaluations and purchase intentions, rather than the usefulness of the WOM messages as perceived by consumers (for example, Park and Lee 2009). In other words, it may be that negative WOM in general does have a stronger influence on sales than positive WOM, but the valence of a WOM message becomes less relevant when a high quality WOM piece provides useful information to customers.

This study also has managerial implications. E-business firms may attempt to encourage positive WOM from existing customers as part of their marketing strategy. Given the importance of WOM quality, online firms need to think about mechanisms to encourage not only more positive customer reviews but also more information-rich reviews that are helpful to future customers. For example, websites like Amazon could include a readability assessment tool showing the readability scores in real-time, that is, while a customer is writing his or her review. In addition, the information quality criteria could be used when ordering the customer reviews appearing on a product's page so that potential customers can spot more useful reviews quicker.

The present study does have some limitations that present future research opportunities. First, our data set deals with one type of product (book). A few recent studies highlight the moderating effects of product type in determining the perceived helpfulness of online WOM (Park and Lee 2009; Mudambi and Schuff, 2010). Future research could include samples from both experience goods and search goods to explore the possible differences in terms of negativity bias.

Second, our model is extendable in a variety of ways, because it excludes some other moderating factors such as reviewer's identity, the time of review posted, and the subcategories of the books. Subsequent research could address these opportunities by collecting more details from each book review and constructing a more comprehensive model to explain the perceived helpfulness of online WOM.

Third, the variables length and readability are two important aspects of review quality, but may not fully and comprehensively reflect this key concept. A qualitative analysis of the review content, possibly with multiple jurors, could provide a better understanding of what makes a quality review and what information components are likely to be perceived as helpful by review readers. Such an analysis,

however, did not form part of the present study due to the large size of the sample. Recent developments in sentiment analysis (the use of artificial intelligence to automatically assess the mood of a review) may be helpful in future work.

References

Amabile, T. M. 1983. "Brilliant But Cruel: Perceptions of Negative Evaluators," *Journal of Experimental Social Psychology* (19:2), pp. 146–156.

Amabile, T. M., and Glazebrook, A. H. 1982. "A Negativity Bias in Interpersonal Evaluation," *Journal of Experimental Social Psychology* (18:1), pp. 1-22.

Basuroy, S., Chatterjee, S., and Ravid, S. A. 2003. "How Critical are Critical Reviews? The Box Office Effects of Film Critics, Star Power, and Budgets," *Journal of Marketing* (67:4), pp. 103–117.

Berger, J., Sorensen, A. T., and Rasmussen, S. J. 2010. "Positive Effects of Negative Publicity," *Marketing Science* (29:5), pp. 815-827.

Chatterjee, P. 2001. "Online Reviews: Do Consumers Use Them?" in *Advances in Consumer Research, Volume 28*, C. Gilly and J. Meyers-Levy (eds.), Valdosta, GA: Association for Consumer Research, pp. 129-133

Chen, M., Ma, Q., Li, M., Dai, S., Wang, X., and Shu, L. 2010. "The Neural and Psychological Basis of Herding in Purchasing Books Online: An Event-Related Potential Study," *Cyberpsychology, Behavior, and Social Networking* (13:3), pp. 321-328.

Chevalier, J. A., and Mayzlin, D. 2006. "The Effect of Word of Mouth on Sales: Online Book Reviews," *Journal of Marketing Research* (43:3), pp. 345-354.

Danescu-Niculescu-Mizil, C., Kossinets, G., Kleinberg, J., and Lee, L. 2009. "How Opinions are Received by Online Communities: A Case Study on Amazon.com Helpfulness Votes," in *Proceedings of the 18th International Conference on World Wide Web*, New York, NY, pp. 141–150.

Dellarocas, C. 2003. "The Digitization of Word of Mouth: Promise and Challenges of Online Feedback Mechanisms," *Management Science* (49:10), pp. 1407-1424.

Dellarocas, C., Zhang, X. M., and Awad, N. F. 2007. "Exploring the Value of Online Product Reviews in Forecasting Sales: The Case of Motion Pictures," *Journal of Interactive Marketing* (21:4), pp. 23–45.

Dowling, G. R., and Staelin, R. 1994. "A Model of Perceived Risk and Intended Risk-Handling Activity," *Journal of Consumer Research* (21:1), pp. 119–134.

Duan, W., Gu, B., and Whinston, A. B. 2008a. "Do Online Reviews Matter?–An Empirical Investigation of Panel Data," *Decision Support Systems* (45:4), pp. 1007–1016.

Duan, W., Gu, B., and Whinston, A. B. 2008b. "The Dynamics of Online Word-Of-Mouth and Product Sales–An Empirical Investigation of the Movie Industry," *Journal of Retailing* (84:2), pp. 233–242.

Feldman, J. M., Lynch, J. G.. 1988. "Self-generated Validity and Other Effects of Measurement on Belief, Attitude, Intention, and Behavior," *Journal of applied Psychology* (73:3), pp. 421–435.

Fiske, S. T. 1980. "Attention and Weight in Person Perception: The Impact of Negative and Extreme Behavior," *Journal of Personality and Social Psychology* (38:6), pp. 889–906.

Flesch, R. 1948. "A New Readability Yardstick," J*ournal of Applied Psychology* (32:3), pp. 221-233.

Fogg, B. J., Soohoo, C., Danielson, D. R., Marable, L., Stanford, J., and Tauber, E. R. 2003. "How do Users Evaluate the Credibility of Web Sites? A Study with Over 2,500 Participants," in *Proceedings of the 2003 Conference on Designing for User Experiences*, New York, NY, pp. 1–15.

Folkes, V. S., and Sears, D. O. 1977. "Does Everybody Like a Liker?" *Journal of Experimental Social Psychology* (13:6), pp. 505-519.

Forman, C., Ghose, A., and Wiesenfeld, B. 2008. "Examining the Relationship Between Reviews and Sales: The Role of Reviewer Identity Disclosure in Electronic Markets," *Information Systems Research* (19:3), pp. 291-313.

Ghose, A., and Ipeirotis, P. 2009. "The EconoMining Project at NYU: Studying the Economic Value of User-generated Content on the Internet," *Journal of Revenue and Pricing Management* (8:2-3), pp. 241-246.

Gibson, B., and Oberlander, E. 2008. "Wanting to Appear Smart: Hypercriticism as an Indirect Impression Management Strategy," *Self and Identity* (7:4), pp. 380-392.

Godes, D., and Mayzlin, D. 2004. "Using Online Conversations to Study Word-of-Mouth Communication," *Marketing Science* (23:4), pp. 545–560.

Herr, P. M., Kardes, F. R., and Kim, J. 1991. "Effects of Word-of-Mouth and Product Attribute Information on Persuasion: An Accessibility-Diagnosticity Perspective," *Journal of Consumer Research* (17:4), pp. 454–462.

Hu, N., Liu, L., and Zhang, J. 2008. "Do Online Reviews Affect Product Sales? The Role of Reviewer Characteristics and Temporal Effects," *Information Technology and Management* (9:3), pp. 201–214.

Hu, N., Zhang, J., and Pavlou, P. A. 2009. "Overcoming the J-shaped Distribution of Product Reviews," *Communications of the ACM* (52:10), pp. 144-147.

Huang, P., Lurie, N. H., and Mitra, S. 2009. "Searching for Experience on the Web: An Empirical Examination of Consumer Behavior for Search and Experience Goods," *Journal of Marketing* (73:2), pp. 55–69.

Kim, D. J., Ferrin, D. L., and Rao, H. R. 2008. "A Trust-Based Consumer Decision-Making Model in Electronic Commerce: The Role of Trust, Perceived Risk, and Their Antecedents," *Decision Support Systems* (44:2), pp. 544–564.

Kim, S. M., Pantel, P., Chklovski, T., and Pennacchiotti, M. 2006. "Automatically Assessing Review Helpfulness," in *Proceedings of the 2006 Conference on Empirical Methods in Natural Language Processing*, Sydney, Australia, pp. 423–430.

Kincaid, J. P., Fishburne, R. P., Rogers, R. L., and Chissom, B. S. 1975. *Derivation of new readability formulas (Automated Readability Index, Fog Count and Flesch Reading Ease Formula) for Navy enlisted personnel*. Research Branch Report 8-75, U.S. Naval Technical Training, Memphis, TN.

Klein, L. R. 1998. "Evaluating the Potential of Interactive Media through a New Lens: Search Versus Experience Goods," *Journal of Business Research* (41:3), pp. 195–203.

Liu, Y. 2006. "Word of Mouth for Movies: Its Dynamics and Impact on Box Office Revenue," *Journal of Marketing* (70:3), pp. 74-89.

Metzger, M. J. 2007. Making Sense of Credibility on the Web: Models for Evaluating Online Information and Recommendations for Future Research," *Journal of the American Society for Information Science and Technology* (58:13), pp. 2078–2091.

Mudambi, S. M., and Schuff, D. 2010. "What Makes a Helpful Online Review? A Study of Customer Reviews on Amazon.com," *MIS Quarterly* (34:1), pp. 185–200.

Nelson, P. 1970. "Information and Consumer Behavior," *The Journal of Political Economy* (78:2), pp. 311–329.

Park, C., and Lee, T. M. 2009. "Information Direction, Website Reputation and eWOM Effect: A Moderating Role of Product Type," *Journal of Business Research* (62:1), pp. 61–67.

Park, D. H., Lee, J., and Han, I. 2007. "The Effect of On-Line Consumer Reviews on Consumer Purchasing Intention: The Moderating Role of Involvement," *International Journal of Electronic Commerce* (11:4), pp. 125–148.

Richins, M. L. 1983. "Negative Word-of-Mouth by Dissatisfied Consumers: A Pilot Study," *The Journal of Marketing* (47:1), pp. 68–78.

Rozin, P., and Royzman, E. B. 2001. "Negativity Bias, Negativity Dominance, and Contagion," *Personality and Social Psychology Review* (5:4), pp. 296-320.

Skowronski, J. J., and Carlston, D. E. 1989. "Negativity and Extremity Biases in Impression Formation: A Review of Explanations," *Psychological Bulletin* (105:1), pp. 131-142.

de Valck, K., van Bruggen, G. H., and Wierenga, B. 2009. "Virtual Communities: A Marketing Perspective," *Decision Support Systems* (47:3), pp. 185-203.

Weathers, D., Sharma, S., and Wood, S. L. 2007. "Effects of Online Communication Practices on Consumer Perceptions of Performance Uncertainty for Search and Experience Goods," *Journal of Retailing* (83:4), 393–401.