What Women and Men Want in Online Product Reviews: Gender Effects on Review Helpfulness Perceptions

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While academic researchers have studied online product reviews extensively, gender differences have received little attention in the context of online product reviews. This paper identifies important message features in online product reviews and examines which message features female and male consumers value more in evaluating the helpfulness of online product reviews. We collected data from real-world product reviews on Amazon.com and analyzed the data to test the proposed hypotheses. Based on the data analysis results, we find that, in determining helpfulness of online product reviews, female consumers consider more heavily average paragraph length, negative viewpoints, and inclusion of pictures. However, male consumers value positive viewpoints and usage of point format more in evaluating online product reviews. Based on the findings, important contributions to the literature are discussed.

Keywords: word-of-mouth, consumer-generated product reviews, information adoption

INTRODUCTION

Previous marketing literature has suggested that electronic Word-of-Mouth (eWOM) significantly impacts consumers' judgment of products and purchase decisions. Particularly, consumer-generated product reviews are important information sources for both buyers and sellers. As online shoppers have adopted online product reviews as a major source of product-related information, academic scholars have studied various aspects of online product reviews. However, gender differences have received little attention in the context of online product reviews. This paper fills this gap in the marketing literature.

Specifically, this paper identifies key message features in online product reviews and examines which message features female and male consumers value more in evaluating the helpfulness of product reviews. As such, this paper attempts to address the following research questions:

- (1) What message features affect readers' information adoption, i.e., helpfulness perceptions?
- (2) What roles does gender play in determining the perceived helpfulness of online product reviews?

LITERATURE REVIEW

Importance of Online WOM

Word-of-mouth (WOM) is "informal, person-to-person communication between a perceived noncommercial communicator and a receiver regarding a brand, a product, an organization, or a service" (Harrison-Walker, 2001). WOM has some advantages over traditional marketing communication, including being trustworthy and relevant, generating empathy, and significantly reducing consumer resistance (Bickart and Schindler, 2001).

With the development of e-commerce, electronic word-of-mouth (eWOM) has become an important information source for consumers. Many consumers rely on eWOM when they shop for products and services. eWOM is "the dynamic and ongoing information exchange process between potential, actual, or former consumers regarding a product, service, brand or company, which is available to a multitude of people and institutions via the Internet" (Ismagilova et al., 2017, p.18). Extant literature has found that eWOM can positively affect consumers' information adoption (Wang et al., 2015), change consumers' attitude (Folse et al., 2016; Shareef et al., 2018), affect consumers' purchase intention (Chen et al., 2016; Erkan and Evans, 2016), and boost sales (Ogut and Tas, 2012). Despite all the advantages of eWOM, it does not come without costs. Too much information (i.e., overload) provided through eWOM can increase consumers' decision difficulty and thus hurt their purchase intention (Singh et al., 2017). Another problem derives from eWOM's anonymity and deception. Since online media are mostly anonymous, some sellers may manipulate online opinions or sponsor online discussions. These covert behaviors of sellers can hurt consumers' trust in eWOM (King et al., 2014). To help sellers better use eWOM and at the same time overcome its shortcoming, we need a better understanding of eWOM.

Message Features and Adoption

Literature has shown that many message features affect readers' adoption. Based on a literature review, Ismagilova, Dwivedi, and Slade (2020) summarize that three factors affect eWOM adoption or perceived helpfulness – eWOM characteristics, information source, and information receiver. For the characteristics of eWOM, rating, content, quality, and volume have shown to have effects on perceived helpfulness of online reviews (Cheung, 2014; Hu and Chen, 2016; Li and Zhan, 2011; Mudambi and Schuff, 2010; Robinson et al., 2012; Singh et al., 2017). For information source of eWOM or authors, perceived reviewer expertise, their product usage experience, trustworthiness, and type of platform have shown impacts on the perceived helpfulness of online reviews (Jeong and Koo, 2015; Kim and Gupta, 2012; Li and Zhan, 2011). For information receiver's knowledge, objectives, and even gender affect their processing of online reviews (Baek et al., 2012; Cracium et al., 2020; Park and Kim, 2008; Sohaib et al., 2018). In this study, we focus on content of product reviews. Specifically, the following five characteristics are examined: average paragraph length, positive viewpoints, negative viewpoints, point format, and inclusion of pictures.

Gender of Readers and Their Adoption of Message

Research has shown that men and women process information differently. For example, compared with men, women tend to process information more comprehensively and effortfully. While men tend to focus on one or a small number of cues, women try to process all available information (Meyers-Levy, 1989; Putrevu, 2001). The same pattern shows when men and women process WOM and eWOM information (Kempf and Palan, 2006; Sanchez-Franco et al., 2009). While women are risk-averse, men are willing to

take a risk when purchasing online (Fan and Miao, 2012; Garbarino and Strahilevitz, 2004; Shi et al., 2016). Women are more influenced by eWOM when reading online reviews (Kim et al., 2011), while men's risk-taking propensity makes them more likely to convert positive eWOM into purchase intentions (Sohaib et al., 2018).

Hypotheses Development

According to the literature on different genders' adoption of messages, women tend to process information in a more comprehensive way than men do (Meyers-Levy, 1989; Putrevu, 2001). This means that, when processing and evaluating a message, women prefer more content in it. More content offers more comprehensive information about the topic and thus satisfies female consumers' desire for more and different pieces of information. However, male consumers would view more content as more complexity and more difficulty of evaluating the message. Therefore, we expect that, compared to male consumers, female consumers would evaluate an online product review as more helpful if the review's average paragraph length is longer.

H1a: When evaluating online product reviews, female consumers perceive product reviews with a longer average paragraph length as more helpful.

H1b: When evaluating online product reviews, male consumers do not perceive product reviews with a longer average paragraph length as more helpful.

The gender difference literature has found that, because men are more risk-taking, they are more likely to convert positive eWOM into purchase intentions (Sohaib et al., 2018). This suggests that men are more receptive to positive messages than negative ones, when deciding whether they adopt the messages or not. In the context of online product reviews, positive reviews would encourage male consumers to adopt the reviews and thus view them as more helpful. However, female consumers tend to be risk-averse and focus less on positive reviews than negative ones. Therefore, female consumers would not find positive reviews as more helpful. Based on this reasoning, we propose:

H2a: When evaluating online product reviews, male consumers perceive product reviews with positive viewpoints as more helpful.

H2b: When evaluating online product reviews, female consumers do not perceive product reviews with positive viewpoints as more helpful.

While men are more risk-taking, women are more risk-averse (Fan and Miao, 2012; Garbarino and Strahilevitz, 2004; Shi et al., 2016). In online purchase situations, the risk is potentially unsatisfying performance of the product. Since female consumers are risk-averse, they aim to avoid the potentially unsatisfying performance of the product they are considering. Hence, they would look for negative performance in product reviews and put more weight on negative comments than on positive ones when they evaluate online product reviews. As a result, they would find negative reviews more helpful for their decision-making. However, this effect would not occur among male consumers. Since male consumers are more risk-taking, they would put more weight on positive reviews than negative ones. Thus, we propose:

H3a: When evaluating online product reviews, female consumers perceive product reviews with negative viewpoints as more helpful.

H3b: When evaluating online product reviews, male consumers do not perceive product reviews with negative viewpoints as more helpful.

When processing information, compared to women, men are more likely to be cognitive misers (Fiske and Taylor, 1984) and tend to use a smaller number of cues than women do (Meyers-Levy, 1989; Putrevu, 2001). Therefore, men would prefer a type of information that is concise and easy to use in comparing multiple product reviews. In the online product review context, that type of information is typically in point format. Male consumers would look for point format information in product reviews and perceive such product reviews as more helpful. However, female consumers would find point format information too simplistic, as they would seek comprehensive information in product reviews. As a result, female consumers would not view as helpful those product reviews that contain point format.

H4a: When evaluating online product reviews, male consumers perceive product reviews with point format as more helpful.

H4b: When evaluating online product reviews, female consumers do not perceive product reviews with point format as more helpful.

As women process information in a comprehensive way, they would seek multiple types of information in product reviews. If a product review contains actual usage pictures along with verbal descriptions of product performance, it offers richer information about the product's performance. Compared to a product review that contains only verbal descriptions, such a product review allows female consumers to process the product review in a more comprehensive way. Therefore, female consumers would prefer product reviews that include usage pictures and would perceive those product reviews as more helpful. However, male consumers would not view such product reviews as more informative. As cognitive misers, they would value simpler product reviews, such as those that contain a concise verbal description without pictures. Hence, we propose:

H5a: When evaluating online product reviews, female consumers perceive product reviews with more pictures as more helpful.

H5b: When evaluating online product reviews, male consumers do not perceive product reviews with more pictures as more helpful.

RESEARCH METHOD

Data Collection

For this study, we selected seven different brands in the hair growth product category listed on Amazon.com, including five for men and two for women respectively. For each gender, the selected brands consist of both lotion or foam applied externally and supplements swallowed by mouth. There are multiple advantages to studying these brands. First, while each of these brands was designed for one of the two genders specifically, they have the same or similar benefits, comparable prices, and features. Second, the authors and the readers of each of the brand's online reviews are apparently of the same gender. Third, these brands have been sold on Amazon for significant amounts of time, without being technically obsolete. Therefore, with all these characteristics, these brands present great opportunities to study the effect of gender on adoption of online product reviews.

TABLE 1
HAIR GROWTH BRANDS SELECTED

Product Name	Price	Users Gender	Review Number	Review Total
Women's Rogaine 5% Minoxidil Foam	\$44.97	Woman	45	136
Nutrafol Women Hair Growth Supplement for Thicker,	\$83.60	Woman	91	
Stronger Hair (4 Capsules Per Day - 1 Month Supply)				
Men's Rogaine 5% Minoxidil Foam	\$45.9	Man	32	139
Nutrafol Mens Hair Growth	\$83.6	Man	60	
Men's Rogaine Extra Strength 5% Minoxidil Topical	\$46.99	Man	19	
Solution for Hair Loss and Hair Regrowth				
Hair Growth Supplement for Men - Grow Hair, Stop Hair	\$26.06	Man	15	
Loss & Regrow Hair, Beard Growth, Skin and Nail Vitamin				
- (60 Capsules)				
Brickell Men's Products Daily Strengthening Shampoo for	\$20.00	Man	13	
Men				

In total, we collected 275 user reviews on these seven hair-growth brands, including 136 reviews from women and 139 from men. These reviews had been posted online for a variety of time durations as of the dates of data collection, ranging from 341 days to 4008 days. The variables used in this study and their measures are shown in Table 2.

TABLE 2VARIBALES AND MEASURES

Variable	Definition or Scale
Gender	Male, Female
Duration	Number of days since the review was posted
Global Rating	Number of ratings the brand has received since it was listed on Amazon
Number of helpfulness	Number of readers have found this review helpful
Average paragraph length	Average number of words in a paragraph
Average sentence length	Average number of words in the sentences
Point format	If the author uses a point format (yes or no)
Positive viewpoint	If the author presents positive viewpoints (yes or no)
Negative viewpoint	If the author presents negative viewpoints (yes or no)
Review length	Number of words in the review
Evidence	If the author provides evidence to support his or her views (yes or no)
Picture	Number of pictures provided by the author in addition to text information
Feature	Number of product and price features the author discusses
Product usage	If the author clearly indicates that he or she has used the brand (yes or no)
Exclamation mark	Number of exclamation marks in the review
Upper case	If the review contains any words in capital format (yes or no)

Dependent Variable Measurement

To measure the perceived helpfulness of product reviews, we operationalized it as the percentage of readers who found the review helpful out of all the readers who read the review in a certain time period. Unfortunately, for each product review, Amazon only reports the number of helpfulness, not the number of readers who have read the review. Because we could not calculate the percentage directly, we used a proxy to measure it. For each product, Amazon shows its global rating, which is the number of all the readers who

have rated it since its introduction. It is logical to assume that the number of global rating is positively associated with the total number of readers who have read the reviews of the product. We also assumed that all the reviews of a brand have been read by the same number of readers. Admittedly, this assumption is somewhat strict since it is more likely that readers wound only read a part of the entire reviews of a brand. To ensure a good distribution of helpfulness numbers and to exclude rarely-read product reviews, we considered only those product reviews that at least ten readers found helpful. In addition, the days for which the review has been posted should be positively associated with the number of all readers. The longer the duration, the more people may have read the product review. Therefore, we measured perceived helpfulness with the following proxy:

Perceived helpfulness = Number of helpfulness / (global rating × post duration)

To make the data analysis results more readable, we multiplied the dependent variable by 1000.

Hypotheses Testing Results

For each gender, we utilized multiple regression analysis to test the hypotheses. An independent variable with a level of significance less than 0.05 is considered to be significantly related to the dependent variable, while a level of significance between 0.05 and 0.1 indicates a marginal association. The regression results for female and male consumers are shown in Table 3.

	Female consumers			Male consumers				
	В	S.E.	t	<i>p</i> -value	В	S.E.	t	<i>p</i> -value
(Constant)	-15.642	18.616	840	.402	6.390	6.840	.934	.352
Average paragraph length (H1a, H1b)	.214	.078	2.737	.007	008	.025	317	.752
Average sentence length	.143	.433	.331	.741	.087	.136	.641	.523
Point format (H4b, H4a)	8.339	22.029	.379	.706	45.302	10.964	4.132	<.001
Positive viewpoint (H2b, H2a)	11.347	12.141	.935	.352	-8.369	4.240	-1.974	.051
Negative viewpoint (H3a, H3b)	26.077	12.038	2.166	.032	2.406	3.841	.626	.532
Review length	036	.035	-1.043	.299	.001	.010	.143	.886
Evidence	-11.914	14.982	795	.428	2.255	3.921	.575	.566
Picture (H5a, H5b)	6.604	3.858	1.712	.089	025	1.225	021	.984
Feature	-9.813	6.636	-1.479	.142	-1.564	2.205	709	.479
Product usage	3.580	16.054	.223	.824	5.888	6.144	.958	.340
Exclamations mark	-1.133	3.096	366	.715	1.913	1.489	1.285	.201
Upper case	27.158	11.561	2.349	.020	-6.888	4.944	-1.393	.166

TABLE 3REGRESSION RESULTS BETWEEN FEMALE AND MALE CONSUMERS

First, H1a and H1b are about how the average paragraph length is related to perceived helpfulness. The regression coefficient estimates for the male consumers (p=0.752) and the female consumers (p=0.007) support these two hypotheses. Second, the female consumers did not find product reviews with positive viewpoints helpful (p=0.352), which supports H2b. While positive viewpoints significantly affected the male consumers' perceived helpfulness (p=0.051), the value of the coefficient estimate is negative, which does not support what H2a predicted. Third, while the female consumers found product reviews with negative viewpoints more helpful (p=0.032), the male consumers did not (p=0.532). Therefore, both H3a and H3b are supported. Fourth, product reviews using a point format had a significant impact on the male consumers' perceived helpfulness (p<0.001) but did not influence helpfulness perceptions by the female consumers (p=0.706). Therefore, H4a and H4b are supported. Last, the female consumers found product reviews with more pictures helpful, although the effect is marginally significant (p=0.089). As predicted, the male consumers did not find product reviews with more pictures helpful, by the analysis results.

DISCUSSION

This present research identifies important message features in online product reviews and examines which message features female and male consumers value more in evaluating the helpfulness of product reviews. We collected data from real-world product reviews on Amazon.com and analyzed the data to test the ten proposed hypotheses. Based on the data analysis results, we find that, in determining the helpfulness of online product reviews, female consumers consider more heavily the following factors: average paragraph length, negative viewpoints, and inclusion of pictures. However, male consumers put more emphasis on positive viewpoints and usage of point format in online product reviews.

While most of the proposed hypotheses are supported, one of them (i.e., H2a) is not supported and deserves further examination. H2a predicted that male consumers would perceive product reviews with positive viewpoints as more helpful when evaluating online product reviews. Our analysis revealed that the coefficient estimate for H2a is significant, with its sign being negative. Combining this result with that for H3b, it is clear that male consumers value positive reviews significantly more than negative ones. However, the negative sign for H2a suggests that male consumers would find positive product reviews *less* helpful, which is the opposite direction to what H2a predicted. This finding suggests that the relationship between positive product reviews and review helpfulness is not linear among male consumers. Since male consumers focus on positive reviews as helpful. However, when they read strongly positive product reviews, they may become highly suspicious of those reviews and thus perceive those reviews as untrustworthy and unhelpful. It appears that these complex interactions among the male consumers in our data caused the negative sign for H2a. This issue is also related to how we measured the "positive viewpoint" variable in our data collection, which was measured as yes or no. If the variable were measured with a 5-point Likert scale in future research, it could explain the complex interactions among male consumers more precisely.

This paper offers meaningful contributions to the marketing literature. First, this paper identifies specific gender differences in the context of evaluating online product reviews. Prior studies on online product reviews paid little attention to gender differences. Since female and male consumers process information differently in certain situations, it is important to investigate how differently female and male consumers process online product reviews. This paper finds that average paragraph length, negative viewpoints, and inclusion of pictures are important review characteristics for female consumers and that male consumers focus on positive viewpoints and usage of point format in product reviews. Second, this paper uncovers that positive and negative reviews may influence helpfulness perceptions of product reviews in different manners. Our findings indicate that negative reviews affect helpfulness perceptions in a linear fashion. In other words, the more negative reviews, the more helpful female consumers would find them. However, positive reviews may affect helpfulness perceptions in a non-linear fashion. These findings expand the knowledge about various factors that can affect how consumers evaluate online product reviews.

LIMITATION AND FUTURE RESEARCH

One limitation of this present research is that we have collected data from only one product category. If future studies examine a different product category or expand to multiple product categories, it would increase generalizability of the gender differences uncovered in this paper. Another limitation is that, instead of a direct measure, a proxy was used to measure review helpfulness perceptions. This proxy was necessary because Amazon does not indicate the total number of readers of each product review on its website. By adopting better ways to measure review helpfulness perceptions, future research could improve the accuracy of the measure and reliability of data analysis results.

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