

# Integrating Conflicting Reviews: Attributional Hypotheses of Consumer Response to Information Uncertainty Depending on Prior Brand Attitude

Do-Hyung Park  
KAIST Business School  
prehero@business.kaist.ac.kr

Ingoo Han  
KAIST Business School  
ighan@business.kaist.ac.kr

## Abstract

*This study investigates how consumers evaluate a product when they read conflicting online consumer reviews of evaluations from previous consumers. If consumers are rational, as is assumed in economics, they prefer the product with the low-variance of review-rating scores rather than the product with the high-variance of review-rating scores because the variance of review-rating scores is positively related to the perceived uncertainty of product performance. Our study finds the condition in which consumers are likely to act irrationally, and explain why consumers have irrational behavior with attribution theory. When attributional bias occurs, consumers with a favorable prior brand attitude prefer the product with high-variance reviews over the product with low-variance reviews. Whereas, if attributional bias does not exist, rational behavior about the information uncertainty is found. Our findings show the underlying mechanism for the consumers' responses to the disagreements of others' opinions and give practical implications for online sellers.*

## 1. Introduction

Others' opinions, such as reference groups and word-of-mouth of friends, have been shown to influence consumers' evaluations [2, 24]. Nowadays, consumers can share their own product evaluations and obtain others' evaluations via the World Wide Web. This is called electronic word-of-mouth. An online consumer review, regarded as an electronic word-of-mouth message from a previous consumer, is an independent product information resource with growing popularity and importance [8].

An online consumer review created by a previous consumer has different characteristics from an advertisement created by an online

seller. The product advertisement is product-oriented, describing attributes in terms of technical specifications, and measuring performance by technical standards. A consumer review, on the other hand, is user-oriented, describing attributes in terms of usage situations, and measuring performance from a user's perspective [20]. A consumer review is more subjective, resulting in positive evaluations from some consumers and negative evaluations from other consumers simultaneously. Thus, potential consumers need to integrate these contradictory reviews which create information uncertainty.

Consumers use various strategies to reduce this uncertainty. It is found that they can reject or ignore an alternative with a conflicting opinion, or use a discounted average value for the category as a default valuation for the alternative [11, 17, 25]. They can average the provided opinions but again discounting this value to adjust for the disagreement [17]. It is also possible for consumers to accept others' opinions selectively depending on their own perspective such as their expectations about a product.

This study investigates how consumers evaluate a product when they read conflicting online consumer reviews of evaluations from previous consumers. This study focuses on the level of disagreements (evaluative extremity). For example, a product has 4 reviews with a 5 star-rating system. One case is that two of the four reviews have two-stars (moderately negative evaluations) and the other two reviews have four-stars (moderately positive evaluations). The other case is that two of the four reviews have one-star (extremely negative evaluations) and the other two reviews have five-stars (extremely positive evaluations). The first case is considered as a low level disagreement, and the second case is a high level disagreement. Each case has a different variance of evaluation scores in spite of the same average score (3-stars). If consumers are rational, as is assumed in economics, they

prefer the product in the first case (low variance) rather than the product in the second case (high variance) because the first one involves lower risk. In addition, according to the previous study on negativity effect, consumers are likely to prefer the product in the first case with moderate negative evaluations rather than the product in the second case with extreme negative evaluations. However, there is recent interesting evidence that, maintaining the average scores, the variance of star-rating scores is positively related to gross product sales [4]. This means that consumers actually have a more favorable attitude toward the product with more highly conflicting reviews than with moderately conflicting reviews. This study starts with this interesting empirical result, and addresses these following research questions: (1) When does consumer's irrational behavior occur? (2) Why does this behavior occur? (3) How can this behavior be resolved? Using attribution theory, this study proposes several hypotheses and tests them to find the underlying mechanism of consumers' integration of multiple conflicting reviews.

## **2. Theoretical Backgrounds and Hypotheses**

### **2.1. A Lack of Consensus on Online Consumer Reviews**

Online consumer review involves positive or negative statements made by consumers about a product for sale in internet shopping malls. This consumer-created information is helpful for decision-making on purchases since it provides consumers with indirect experiences. An online consumer review plays two roles – an informant role and a recommender role [20]. As an informant, online consumer reviews deliver additional user-oriented information. They include experiences, evaluations and opinions on products by former purchasers. As a recommender, they provide either a positive or negative signal of product popularity. If reviewers have an overall positive evaluation of a product, more reviews are likely to encourage consumers to infer that the product is popular.

Online consumer reviews about a product often foster a lack of consensus because they are subjective opinions from previous consumers. Differences in product evaluations are frequent [3] because of unreliability in sensory experiences, different latitudes of acceptance, or

heterogeneity in personal preferences. In the psychology literature, there have been a number of studies on these disagreements in the context of person attributes. These studies examined the observers' evaluations on a person with positive attributes and negative attributes. According to the well-known averaging model of information integration [1], observers' impressions of a person should be neutral if this person shows the same number of positive and negative attributes, each to the same extent. However, some studies reveal that even if the relative number of positive and negative attributes is controlled and balanced, negative impressions tend to emerge [22, 23, 28]. On the other hand, positivity effects have also been found [27], although considerably less frequent than negativity effects.

The research in decision making suggests that a lack of consensus in opinions can create uncertainty for consumers [17]. In addition, the level of disagreement may be related to the level of uncertainty. For example, there is a higher level of disagreement when a product received a one star-rating score and a five star-rating score in a five star-rating system than when it has a two star-rating score and a four star-rating score even though these two cases have the same average score. Consumers may perceive more uncertainty for a product having one and five star-rating scores than a product with two and four star-rating scores. Prior research has shown that consumers respond negatively to such uncertainty [12]. Specifically, consumers may completely reject an alternative with conflicting opinions or ignore the inconsistent information and use a discounted average value for the category as a default valuation for the alternative [12, 17, 25]. Alternatively, consumers may use others' opinions by averaging them and discounting this averaged information to adjust for the disagreement [17].

Since the level of disagreement is directly linked to the perceived uncertainty, consumers may discount the value of products differently depending on the level of disagreements. A product with a high level of disagreements is perceived as being less valuable than a product with a low level of disagreement. Therefore, consumers are more likely to purchase the product with a level of low disagreement, which is rational. Prospect theory also explains the consumer choice of a product with a low level of disagreement. Since consumers put more weight on negative information [13], a product with a high level of disagreement having more extreme negative information is less likely to be chosen.

Is there any situation in which consumers respond to a disagreement irrationally by showing a preference for a product with a high level of disagreement? Our study finds the condition in which consumers are likely to act irrationally in their preferences for a product with a high level of disagreement, and explains why consumers have irrational behavior with attribution theory [14, 15].

## 2.2. Attribution Theory

Attribution theory [14, 15, 29] focuses on how individuals interpret and ascribe causality to events. The theory suggests that when we interact with objects or their actions, we associate our favorable or unfavorable attitudes toward them or their actions with the attributes they contain [21]. Dubinsky et al. [6] summarize three key assumptions in attribution theory: (1) people try to determine the causes of their and others' behavior, (2) people assign causal explanations for behavior in a systematic manner and (3) attributions which people make have consequences for future behavior. An individual is thought to attribute his or her (or another's) behavior or attitudes to characteristics of the stimulus (object) or themselves (person), the circumstances, or some combination of these. For example, when consumers read online consumer reviews, they can attribute the reviewer evaluations to the product or to the reviewer. If consumers reading negative (positive) reviews attribute review contents to the target product, they think that the product is really bad (good). However, if the same consumers attribute reviews to the reviewers, their evaluations may not reflect the reviewers' evaluations because they think the reviewers have no expertise or ability to evaluate correctly. The direction of attribution can be different depending on the product type. Nelson [18, 19] classified products as being either experience or search goods. Experience goods are those whose features can only be evaluated by trying or inspecting the product, while the features of search goods can be evaluated based on externally available information. Based on this classification, search goods can be objectively assessed based on the information available in the advertisements (e.g. MP3 player or digital camera). However, in the case of an experience good, the information available might not be good enough for the customer to evaluate the product (e.g. cosmetics or hotel service). Therefore, online consumer reviews about search

goods can directly inform potential consumers of product quality and be judged to be right or wrong. In contrast, consumer reviews about experience goods are inherently unverifiable and may not seem credible or objective to potential consumers. Finally, consumers may think that the review evaluations about experience goods are based on reviewers' own experiences, which results in attributing review contents more to reviewers rather than to the target product. Whereas, consumers reading reviews about search goods are more likely to attribute review contents to the target product because they can judge whether the evaluation is right or wrong based on advertisement information and their experiences. Thus, we propose the following hypotheses.

***Hypothesis 1:** Consumers are more likely to attribute review evaluation to the reviewer when they read reviews on experience goods than search goods.*

***Hypothesis 2:** Consumers are more likely to attribute review evaluation to the target product when they read reviews on search goods than experience goods.*

## 2.3. The moderating role of prior brand attitude Attribution Theory

Attributional bias can occur depending on the attribution. Consumers are likely to make a decision with attributional bias when it is easy to attribute information to communicators and hard to attribute it to the target product. According to Hypotheses 1 and 2, this situation takes place for experience goods. Attributional bias leads consumers to concentrate more on the information that fits with their beliefs and less on the information that does not fit with their beliefs. In this study, we consider prior brand attitude as the variable that changes consumer beliefs.

Having prior brand attitude, they tend to process information selectively. When consumers read consistent information that fits with the associations in their mind, they should accept the information directly and reinforce these associations [30]. For example, when consumers have a favorable (unfavorable) prior brand attitude, positive (negative) reviews fit with their beliefs which have already been formed through their past experiences. In addition, a high-evaluated (low-evaluated) brand name is expected to reduce the persuasiveness of

negative (positive) reviews because impression-inconsistent information is typically deflected away from the brand and discounted [10]. Such a view is consistent with research in attribution theory, which suggests that attributions directed at the focal object are unlikely to be generated by receivers who have favorable associations with it [7]. Thus, based on the cognitive process mechanisms of attributional biasing [5] and discounting [26], receivers should attribute negativity (positivity) away from the focal brand when the negative (positive) information (about the focal brand) is inconsistent with a positive (negative) brand name. In these cases, receivers of negative (positive) information on favorable (unfavorable) brands will be more likely to attribute the negativity (positivity) of the reviews toward the reviewers. Hilton's model of social communication [9] suggested that, all things being equal, a receiver assumes that a conveyor of interpersonal information is trying to be helpful and consequently should be positively disposed toward the communicator at the time of exposure. However, when contradictory information (i.e., negative (positive) information on a favorable (unfavorable) brand name) is presented by a communicator, the receiver will shift his or her impressions toward the negative, leaving him or her in a state of cognitive imbalance. Hilton's model suggested this imbalance will be overcome by the receivers' attributing the belief-inconsistent messages toward the communicator. Consequently, consumers put less or no weight on the evaluations from reviews as inconsistent information. That is, when consumers are exposed to the reviews about a highly-regarded brand, they put less weight on the negative reviews (inconsistent information) and more weight on the positive information (consistent information). Thus, consumers are likely to prefer a product with a high level of disagreement having extremely positive reviews. On the other hand, when consumers are exposed to the reviews on a lowly-regarded brand, they put less weight on the positive reviews (inconsistent information) and more weight on the negative information (consistent information). Finally, when consumers read online consumer reviews on experience goods, consumers respond to the disagreement of review information irrationally with attributional bias, indicating that consumers prefer the product with a high level of disagreement for highly-regarded brand. Thus, we propose the following hypotheses.

**Hypothesis 3:** *For experience goods, consumers exposed to the reviews on a lowly-regarded brand have a more favorable product attitude when the variance of review evaluations is low than when the variance of review evaluations is high.*

**Hypothesis 4:** *For experience goods, consumers exposed to the reviews on a highly-regarded brand have a more favorable product attitude when the variance of review evaluations is high than when the variance of review evaluations is low.*

When it is easy to attribute review information to the target product and hard to attribute it to communicators, consumers are likely to process the information without attributional bias. According to Hypotheses 1 and 2, this situation takes place for search goods. Consumers may put equal weight on belief-consistency and belief-inconsistency, resulting in a preference for the product with a low level of disagreement rather than the product with a high level of disagreement to reduce the information uncertainty. In addition, they put more weight on the negative evaluations because negative information is more salient than positive information according to the prospect theory. Finally, when consumers read online consumer reviews on search goods, consumers respond to the disagreement of review information rationally without attributional bias, indicating that consumers prefer the product with a low level of disagreement rather than the product with a high level of disagreement regardless of prior brand attitude. Therefore, we propose the following hypothesis.

**Hypothesis 5:** *For search goods, consumers have a more favorable product attitude when the variance of review evaluations is low than when the variance of review evaluations is high regardless of prior brand attitude.*

### 3. Research Design and Method

The primary objective of this experiment is to examine consumers' integration of multiple conflicting reviews. We predict that, when consumers are likely to attribute review contents to communicators, consumers make decisions with attributional bias and respond to the disagreement irrationally. Whereas, when consumers are likely to attribute review contents

to the target product, consumers respond to the disagreement rationally, as is assumed in economics.

### 3.1. Design, Subjects, and Experimental System

To test these hypotheses, a  $2 \times 2 \times 2$  between-subjects design was employed. One hundred and sixty participants were recruited in the current experiment in exchange for a \$5 stationery gift. Their mean average age was 29.5 years and 85 were males. The main study was preceded by two pretests for choosing the product category and brand.

*Pretest 1:* The objective of this pretest was to screen a variety of goods to select the appropriate products for the product type variable (search product vs. experience product) of the main study. The primary screening criterion was the perceived ease of quality prediction. Several goods were given and rated. Finally, one pair with a similar price was chosen by 30 undergraduate students: MP3 player vs. Cosmetics (about \$50).

*Pretest 2:* The primary objective of this pretest was to screen brands of each product for brand evaluations to operationalize the high or low brand evaluation variable in the main study. Brands were compared on the basis of (1) subject awareness of brand, (2) the degree to which the subject would consider buying one brand over others, and (3) the degree to which the subject would recommend one brand over others. A total of 5 brands for each product were screened by 40 undergraduate students. For each product category, brands tended to segregate into very high, high, middle, low, and very low. To avoid a ceiling or bottom effect (i.e. reviews unable to increase (decrease) the perception of a brand with an already high (low) evaluation), brands to operationalize the high or low brand variable were chosen from highly-evaluated and lowly-evaluated brand instead of very-highly-evaluated and very-lowly-evaluated brand. Thus, Samsung vs. Hyunwon for MP3 and Calvin Klein vs. Odyssey for cosmetics were selected as the high and low brand, respectively.

Five reviews for each product were created on the basis of actual consumer reviews on a target product posted at well-known online shopping malls. The content of each review

consisted of two different arguments on a target product. Included in each review were the review title, the poster's name, and review content. The length of each review was controlled at three lines for consistent quantity of information provided. Two reviews among 5 reviews were positive, another two reviews were negative, and the other review was neutral. Each review had a star-rating score. For the high variance condition, we put 7-stars for positive reviews and 1-star for negative reviews. Whereas, for the low variance condition, we put 5-stars for positive reviews and 3-stars for negative reviews. The neutral review had 4-stars. The mean value of star-rating scores is 4-stars, but the standard deviation is different: 3-stars for the high variance condition and 1-star for the low variance condition.

### 3.2. Procedure and Measures

At the beginning, participants were given the product information about either MP3 player or cosmetics. In addition, the brand was manipulated as either a highly-regarded brand or lowly-regarded brand. Thus, a total of 4 different product advertisements (Samsung MP3, Hyunwon MP3, Calvin Klein Cosmetics, and Odyssey Cosmetics) were created. The product information on each product in a web page that resembled the look of a well-known internet shopping mall included a brand name, an image, and five product benefits. Next, participants were exposed the five online consumer reviews. These reviews with either a low variance in the star-rating scores or a high variance in the star-rating score were located below the product advertisement. After exposure to the stimuli, participants were asked to evaluate the target product using five 7-point bipolar items (e.g., dislike-like, bad-good, unfavorable-favorable, low-high quality, useless-useful). These items represented a single reliable factor for product attitude ( $\alpha = 0.97$ ), and therefore were averaged to form a brand evaluation score where higher numbers indicated more favorable evaluations. Participants then were asked to report the direction of their attributions of review contents. A total of 6 measurements (3 for product attribution ( $\alpha = 0.96$ ) and 3 for reviewer attribution ( $\alpha = 0.96$ )) were borrowed from the study of Laczniak et al. [16]. The attribution measurements were followed by some additional questions including three that served as manipulation checks for perceived ease of quality prediction, three that served as manipulation checks for consumer prior brand

attitude, and three that served as manipulation checks for perceived variance of review evaluations. These items were averaged to form product type (search product vs. experience product;  $\alpha = 0.97$ ), prior brand attitude (favorable brand vs. unfavorable brand;  $\alpha = 0.95$ ), and review variance (high variance vs. low variance;  $\alpha = 0.95$ ) respectively. Next, to measure control variables, five items for review quality ( $\alpha = 0.90$ ), two items for general review positiveness (i.e. the mean value of review evaluations) ( $\alpha = 0.90$ ), five items for advertisement quality ( $\alpha = 0.97$ ) and one item for subjective product knowledge were measured. Finally, participants completed demographic items, and were then debriefed and thanked.

## 4. Research Results

### 4.1. Manipulation and Control Checks

A 2 (product type)  $\times$  2 (prior brand attitude)  $\times$  2 (review variance) ANOVA was conducted to check participants' perception of ease of quality prediction, prior brand attitude, and perceived variance of review evaluations. Our analysis first showed the significant main effect of product type, indicating that participants found quality prediction easier in the search product condition ( $M = 4.2$ ) than in the experience product condition ( $M = 2.18$ ,  $F(1,152) = 307.17$ ,  $p < .001$ ), whereas participants' perceptions of ease of quality prediction did not differ across other variables. Second, our analysis revealed the significant main effect of prior brand attitude ( $F(1, 152) = 478.60$ ,  $p < .001$ ), indicating that participants had a more favorable brand attitude and higher expectation level for product performance in the highly-regarded brand condition ( $M = 5.14$ ) than in the lowly-regarded brand condition ( $M = 2.96$ ). The other variables were not significant in this analysis. Finally, the analysis of the perceived variance of review evaluations showed only the significant main effect of review variance, indicating that participants in high variance condition ( $M = 4.86$ ) found review evaluations more varied and uncertain than those in the low variance condition ( $M = 2.82$ ,  $F(1,152) = 498.59$ ,  $p < .001$ ). These results demonstrated that all manipulations were successful.

All groups equally accepted the degree of positiveness of reviews on the product ( $F(7,152) = 0.26$ ,  $p < 0.96$ ). There was no significant

differences of perceived review quality and perceived advertisement quality between the groups ( $F(7,152) = 1.23$ ,  $p < 0.29$ ;  $F(7,152) = 0.86$ , respectively). Finally, subjective product knowledge was also not different between the groups ( $F(7,152) = 0.27$ ,  $p < 0.95$ ).

### 4.2. The Direction of Attribution

A 2 (product type)  $\times$  2 (prior brand attitude)  $\times$  2 (review variance) ANOVA on product and reviewer attribution was conducted to test Hypotheses 1 and 2. The analysis on reviewer attribution showed the significant main effect of product type, indicating that the participants in the search product condition ( $M = 4.77$ ) attributed review contents more to the reviewer than the participants in the experience product condition ( $M = 2.80$ ,  $F(1,152) = 479.00$ ,  $p < .001$ ), whereas participants' reviewer attribution did not differ across other variables. The analysis on product attribution showed the significant main effect of product type, indicating that the participants in the search product condition ( $M = 4.2$ ) attributed review contents more to the target product than the participants in the experience product condition ( $M = 2.18$ ,  $F(1,152) = 451.12$ ,  $p < .001$ ), whereas participants' product attribution did not differ across other variables. Thus, both Hypothesis 1 and 2 were accepted.

### 4.3. Brand Evaluation

A 2 (product type)  $\times$  2 (prior brand attitude)  $\times$  2 (review variance) ANOVA on brand evaluation was conducted to test Hypotheses 3, 4, and 5. As Table 2 shows, our analysis revealed two significant main effects of prior brand attitude and review variance, indicating the participants in the highly-regarded brand condition ( $M = 5.24$ ) had higher evaluations than the participants in the lowly-regarded brand condition ( $M = 3.30$ ) and the participants in the low variance condition ( $M = 4.54$ ) had higher evaluations than the participants in the low variance condition ( $M = 4.00$ ). The effect of prior brand attitude showed that the prior brand evaluation transferred to the current brand evaluation. The effect of review variance meant that consumers generally preferred the low variance condition because it was perceived to have lower risk. The effect of product type was not significant.

	Experience Product		Search Product	
	Unfavorable Brand	Favorable Brand	Unfavorable Brand	Favorable Brand
Low Variance	3.84 (1.06) n = 20	4.85 (1.00) n = 20	3.78 (1.08) n = 20	5.68 (0.89) n = 20
High Variance	2.82 (1.05) n = 20	5.70 (0.91) n = 20	2.77 (1.11) n = 20	4.73 (1.37) n = 20

**Table 1. Descriptive statistics of brand evaluation**

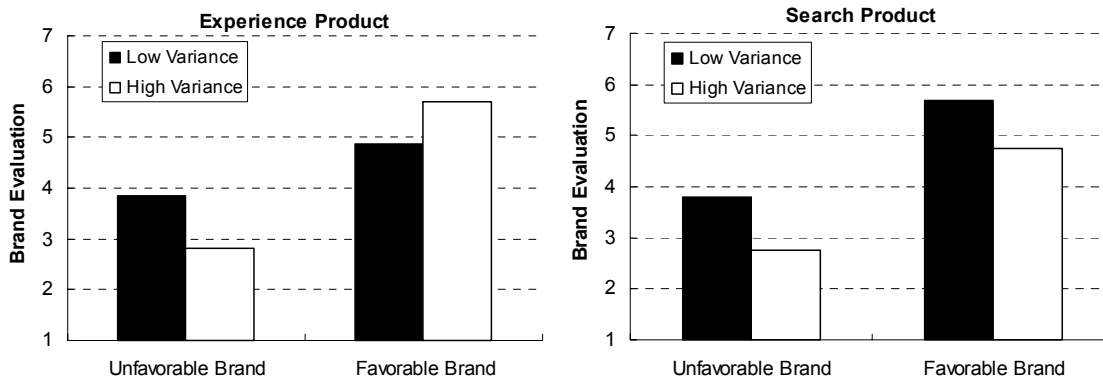
Source	F-value	P-value
Product Type	0.138	0.711
Prior Brand Attitude	144.108	0.001
Review Variance	10.958	0.001
Product Type * Prior Brand Attitude	0.002	0.967
Product Type * Review Variance	7.695	0.006
Prior Brand Attitude * Review Variance	9.005	0.003
Product Type * Prior Brand Attitude * Review Variance	7.810	0.006

**Table 2. Three-way ANOVA results on brand evaluation**

Two significant two-way interaction effects of product type  $\times$  review variance and prior brand attitude  $\times$  review variance and the significant three-way interaction effect were revealed. Since the three-way interaction effect was significant, we could separate the results for the hypotheses test depending on product type. For experience product, the significant main effect of prior brand attitude ( $F(1,76) = 74.87, p < .001$ ), and the significant interaction effect of prior brand attitude  $\times$  review variance ( $F(1,76) = 17.33, p < .001$ ), were found, indicating participants with a favorable prior-attitude had higher product evaluations when they read reviews with high variance ( $M = 5.70$ ) than low variance ( $M = 4.85$ ) and participants with an

unfavorable prior-attitude had higher product evaluations when they read reviews with low variance ( $M = 3.84$ ) than high variance ( $M = 2.82$ ). Thus, both Hypothesis 3 and 4 were accepted. For the search product, the two significant main effects of prior brand attitude and review variance were revealed ( $F(1,76) = 69.39, p < .001$ ;  $F(1,76) = 17.95, p < .001$ , respectively). This result indicated that the participants had higher product evaluations when they read reviews with low variance than high variance regardless of prior brand attitude (high prior brand attitude:  $M_{low\ variance} = 5.63$  vs.  $M_{high\ variance} = 4.78$ ; low prior brand attitude:  $M_{low\ variance} = 3.78$  vs.  $M_{high\ variance} = 2.77$ ). Thus, Hypothesis 5 was also accepted.

**Figure 1. ANOVA results on brand evaluation**



**5. Conclusion**

This study finds that consumers' responses to conflicting review evaluations differ depending on the target of message attribution and prior brand attitude. When consumers attribute review contents to the focal brand, consumers' product evaluations under the low variance condition are higher than under the high variance condition regardless of prior brand attitude. When consumers attribute review contents to the reviewers, consumers with a favorable brand attitude have higher brand evaluations under the high-variance condition, and consumers with an unfavorable brand attitude have higher brand evaluations under the low-variance condition.

This study has several theoretical contributions. First, for the information-processing literature, this study suggests the underlying mechanism for the consumers' responses to the disagreements of others' opinions. Using attribution theory, this study shows that consumers do not always respond to information uncertainty from the disagreements rationally, even though rationality is assumed in economics. When attributional bias occurs, consumers with a favorable prior brand attitude prefer the product with high variance reviews over the product with low variance reviews. Whereas, if attributional bias does not exist, rational behavior about information uncertainty is found. Second, this study focuses on the variance of online consumer review evaluation. Previous studies consider review quantity, review quality, or review positiveness, but the effect of review variance is not covered. This study regards review variance as information uncertainty, and examines when and why consumers have different preferences in terms of review variance. Also, this study can explain the empirical results of Clemons et al. [4] indicating that, maintaining the average scores, the variance of star-rating is positively related to gross product sales in the context of the beer industry. Beer is an experience good, so consumers may

make decisions with attributional bias. Our results are helpful for understanding and explaining the empirical results of Clemons et al. [4].

This study has several practical implications. First, it emphasizes the importance of showing the variance of star-rating scores as well as the average of star-rating scores. Since consumers' brand attitude can differ depending on the variance of review evaluations, online sellers need to map out a strategy considering product type and brand power. Second, this study shows the importance managing review contents for removing consumers' attributional bias. Attributional bias leads consumers to act irrationally, so online sellers help consumers make rational purchase decisions by giving qualified credible reviews. Finally, brand managers can use the results of this study for developing selling strategies. For a lowly-regarded brand, the convergence of review evaluations is important because this brand has already been perceived as a risky choice for consumers. The convergence of review evaluations from others' opinions may reduce performance uncertainty, resulting in adjusting the prior belief about the risk without prejudice.

This research has certain caveats and limitations that merit attention as they offer new avenues for further research. To focus on the effects of review variance, we conducted a lab experiment lacking of external validity. Also, this study controlled other major variables such as review positiveness and review quality. Thus, another fruitful area for additional studies would be to extend our results to the circumstance under which cognitive resources (e.g., involvement, personal relevance, NFC, distraction, etc.), argument quality (e.g., strong vs. weak arguments), or individual characteristics (e.g., dogmatism, self-monitoring, social comparison) are varied together with the review variance.

## References

- [1] Anderson, N.H. *Foundations of Information Integration Theory*, Academic Press, San Diego, CA, 1981.
- [2] Bearden, William O., and Etzel, Michael J. "Reference Group Influence on Product and Brand Purchase Decisions," *Journal of Consumer Research* (9), September 1982, pp. 184-194.
- [3] Boor, Myron. "Reliability of Ratings by Professional Movie Critics," *Psychological Reports* (67), August 1990, pp. 243-257.
- [4] Clemons, E.K., Gao, G., and Hitt, L.M. "When Online Reviews Meet Hyperdifferentiation: A Study of the Craft Beer Industry," *Journal of management information systems* (23:2), 2006, pp.149-172.



- [5] De Nisi, A.S., Cafferty, T.P., and Meglino, B.M. "A Cognitive View of the Performance Appraisal Process: A Model and Research Propositions," *Organizational Behavior and Human Performance* (33), 1984, pp. 360–396.
- [6] Dubinsky, A.J., Skinner, S.J., and Whittler, T.E. "Evaluating Sales Personnel: An Attribution Theory Perspective," *Journal of Selling and Sales Management* (9:2), 1989, pp. 9–21.
- [7] Harvey, J.H., and Weary, G. "Current Issues in Attribution Theory and Research," *Annual Review of Psychology* (35), 1984, pp. 427–459.
- [8] Hennig-Thurau, T. and Walsh, G.. "Electronic Word of Mouth: Motives and Consequences of Reading Customer Articulations on the Internet," *International Journal of Electronic Commerce* (8:2), 2004, pp. 51-74.
- [9] Hilton, D.J. "The Social Context of Reasoning: Conversational Inference and Rational Judgment," *Psychological Bulletin* (118), 1995, pp. 248–271.
- [10] Hoch, S.J., and Deighton, J. "Managing What Consumers Learn from Experience," *Journal of Marketing* (53), April 1989, pp. 1–20.
- [11] Jaccard, J., and Wood, G.. "The Effects of Incomplete Information on the Formation of Attitudes toward Behavioral Alternatives," *Journal of Personality and Social Psychology* (54), April 1988, pp. 580–591.
- [12] Jaccard, James and Wood, Gregory "The Effects of Incomplete Information on the Formation of Attitudes toward Behavioral Alternatives," *Journal of Personality and Social Psychology* (54), April 1988, pp. 580–591.
- [13] Kahneman, Daniel and Tversky, Amos. "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* (47), March 1979, pp. 263–291.
- [14] Kelley, H.H. "The Process of Causal Attribution," *American Psychologist* (28), 1973, pp. 107–128.
- [15] Kelley, H.H. *Causal Schemata and the Attribution Process*, General Learning Press, New York, 1972.
- [16] Lacznik, R.N., DeCarlo, T.E., and Ramaswami, S.N. "Consumers' Responses to Negative Word-of-Mouth Communication: An Attribution Theory Perspective," *Journal of Consumer Psychology* (11:1), 2001, pp. 57–73.
- [17] Meyer, Robert J. "A Model of Multiattribute Judgments under Attribute Uncertainty and Informational Constraint," *Journal of Consumer Research* (8), November 1981, pp. 428-441.
- [18] Nelson, P. (1970), "Information and Consumer Behavior," *Journal of Political Economy* (78:2), 1970, pp.311-329.
- [19] Nelson, P. "Advertising as information," *Journal of Political Economy* (82:4), 1974, pp.729-754.
- [20] Park, DH., Lee, J., and Han, I. "The Effects of Online Consumer Reviews on Consumer Purchasing Intention: The Moderating Role of Involvement," *International Journal of Electronic Commerce*, forthcoming.
- [21] Pate, L.E. "Understanding Human Behavior," *Management Decision* (25:6), 1987, pp. 58–64.
- [22] Reeder, G..D., and Brewer, M.B. "A Schematic Model of Dispositional Attribution in Interpersonal Perception," *Psychological Review* (86), 1979, pp. 61–79.
- [23] Reeder, G..D., and Spores, J.M. "The Attribution of Morality," *Journal of Personality and Social Psychology* (44), 1983, pp. 736–745.
- [24] Rogers, Everett M. "New Product Adoption and Diffusion," *Journal of Consumer Research* (2), March 1976, pp. 290–301.
- [25] Ross, William T.Jr., and Creyer, Elizabeth H. "Making Inferences about Missing Information: The Effects of Missing Information," *Journal of Consumer Research* (19), June 1992, pp. 14–25.
- [26] Sanbonmatsu, D.M., Kardes, F.R., and Gibson, B.D. "The Impact of Initial Processing Goals on Memory-based Brand Comparisons," *Advances in Consumer Research* (16), 1989, pp. 429–432.

- [27] Skowronski, J.J., and Carlston, D.E. "Social Judgment and Social Memory: The Role of Cue Diagnosticity in Negativity, Positivity, and Extremity biases," *Journal of Personality and Social Psychology* (52), 1987, pp. 689–699.
- [28] Van der Pligt, J., and Eiser, J.R. "Negativity and Descriptive Extremity in Impression Formation," *European Journal of Social Psychology* (10), 1980, pp. 415–419.
- [29] Weiner, B. "An Attribution Theory of Motivation and Emotion," *Psychological Review* (92), 1985, pp. 548–573.
- [30] Wilson, W.R., and Peterson, R.A. "Some Limits on the Potency of Word-of-Mouth Information," *Advances in consumer research* (16), 1989, pp. 23–29.