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READING CONSUMER REVIEWS TO CONFIRM MY EXPECTATIONS: THE ACCELERATED IMPACT OF CONFIRMATION UNDER EXTREME REVIEW TONES

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Abstract

This study examines how the initially perceived product value affects a consumer's purchase intention after he/she reads various tones of online reviews. It proposes that the associations among the initially perceived product value, the level of confirmation made by reading reviews and final purchase intention would differ across review tones that; 1) when the tone is extreme, the impact of confirmation will be stronger than when the tone is moderate and 2) when the tone is favorable, the impact of initially perceived product value will be stronger than when the tone is critical. The survey was conducted to 276 online shopping mall users in Korea and most of hypotheses were supported. This study emphasizes that the impact of online review should be discussed together with the level of expectation that a customer had before reading online reviews, because the customers have to go through searching and screening processes before reading online reviews.

Keywords: electronic word-of-mouth, Expectation-confirmation theory, Product value, Review tone.

1   INTRODUCTION

Majority of online shoppers nowadays carefully read online consumer reviews before making purchase decisions (Lee et al. 2011). Online reviews are considered more informative, objective, and reliable than seller-provided product information, because these reviews offer straightforward descriptions of various consumers' shopping experiences (Cheung et al. 2009; Dellarocas 2003). The tone of seller-provided product information is usually partial and monotonous, whereas online consumer reviews illustrate various aspects of the product, often with criticism. Online shoppers frequently change their minds because of the criticism they read in online reviews (Promomagazine 2009).

The critical impact of online consumer reviews on consumer shopping behaviors has motivated researchers to examine this issue from various perspectives. For example, researchers investigated the relationship of online reviews with other business factors, such as sales and prices (Gu et al. 2011; Archak et al. 2010), or identified factors that make online reviews more helpful (Mudambi & Schuff 2010). Other researchers have focused on the methods for quantifying consumer reviews (Cao et al. 2011) due to the atypical structures of various online reviews.

However, the expectations online shoppers have before they read online reviews have not been considered important in literature. People usually have different needs, tastes, and expectations, and so do online consumers. When consumers have different expectations on the product, they may behave differently, even though they read the same reviews. According to expectation-confirmation theory (ECT) (Oliver 1980), different expectations lead to different levels of confirmation, thereby generating different attitudes among various consumers.

Consumers, especially online ones, are likely to have different expectations because they are likely to have gone through a searching and screening process before reading online reviews. Usually, there are more products than a consumer can inspect in detail. Thus, a consumer should initially narrow down his selection based on his preference, such as price and brand, before considering the product specifications and other relevant information by reading online reviews. In doing so, he confirms whether or not the product suits his needs.

Based on these findings, the present study suggests that the effect of online review should be discussed along with the consumer's expectation before reading online reviews. The study aims to investigate the effects of online reviews under different review tones by hypothesizing that the total review effect is determined by the combined effect of the consumers' expectations and confirmations based on the reviews. ECT is employed as a theoretical basis to explain the relationship between the initial expectation and the succeeding behavior with the mediation of confirmation.

This study is organized as follows. First, existing works on online reviews and the ECT are reviewed. A research model that hypothesizes the associations among perceived initial value, review confirmation, purchase intention, and review tone is proposed. A survey is conducted among 276 respondents with most of the hypotheses supported. Finally, new findings are discussed to highlight the academic contribution and practical implication of the study.

2   LITERATURE REVIEW

2.1   Online Review Effect

Studies on online review contents (i.e., online reviews in verbal form) are relatively new compared with those on online review ratings (i.e., reviews in numeric form). Online review contents are harder to measure and analyze because their forms are varied and unstructured. When people freely express

their feelings and experiences, such as in online reviews, measuring and quantifying the content are difficult. However, given the critical influence of reviews on consumers' decision-making process (Mudambi & Schuff 2010), studies on online reviews have been conducted with different scopes and approaches.

Studies on review content have focused on how helpful the reviews are for customers (Ghose & Ipeirotis 2011), how much they can be manipulated (Hu et al. 2011), or what are the hidden motivations in writing such reviews (Dellarocas et al. 2010). These studies collected data from major websites such as Amazon (Mudambi & Schuff 2010), Barnes & Noble (Hu et al. 2011), and Yahoo! Movies (Dellarocas et al. 2010). These studies conducted econometric analysis (Dellarocas et al. 2010) or data mining techniques (Cao et al. 2011). These approaches are effective in observing how contents are made or produced, and in exploring the hidden rules and patterns in reviews.

Another stream of online review studies analyzed the relationship between the reviews and other business factors such as sales (Gu et al. 2011) and price (Archak et al. 2010). These studies extended the research scope to determine the impact of review contents and revealed that products and consumer types have a moderating impact (Zhu & Zhang 2010). Moreover, these studies demonstrated how reviews can be used to understand consumers' relative preferences for different product features and to create predictive models of future sales (Archak et al. 2010). These studies made a significant effort to quantify the reviews first, and then examined their influences on various business factors.

The third approach made by online review studies is by analyzing social effects via economic models. These studies hypothetically controlled social factors such as price, profit, and consumer surplus (Li & Hitt 2008) and showed when and how sellers should adjust its own marketing communication strategy in response to consumer reviews (Chen & Xie 2008). They also suggested that firms could benefit from altering their marketing strategies, such as pricing or advertising, to encourage positive reviews from consumers (Li & Hitt 2008). For repeat purchase products, online reviews are known to intensify price competition and lead to lower profits (Li et al. 2011).

2.2   Expectation-confirmation Theory (ECT)

Oliver (1980) first proposed the expectation-confirmation theory in 1980 when he explained the post-purchase attitude by relating it to pre-purchase attitude and confirmation. Based on his model, a customer's post-purchase satisfaction is determined by the function of pre-purchase attitude (i.e., expectation) and the expectancy disconfirmation. Moreover, post-purchase attitude is proposed to be a function of pre-purchase attitude (i.e., expectation) and immediate post-purchase satisfaction. Compared with previous studies on expectation and satisfaction, his work was highly appreciated because he emphasized the cognitive comparison between anticipated satisfaction and received satisfaction. He also highlighted the time gap between the pre-purchase and post-purchase stages by naming it as (dis)confirmation.

ECT has been often applied in IS studies to explain the continuous usage of IS. This theory is highly effective in explaining the repeated use of IS because it takes into account previous experiences when observing current actions (Bhattacherjee 2001). Other studies have used ECT by applying different contexts such as portal with playfulness (Lin et al. 2005) and enjoyment (Thong et al. 2006). On the other hand, Tesch et al. (2005) methodologically extended this concept by measuring the gap between two parties' perceptions on the same project. Constructs that imply continuous usage, such as loyalty, were also investigated with the theory (Kim et al. 2009).

Another noteworthy application of ECT is SERVQUAL, which was proposed by Parasuraman et al. in 1988. SERVQUAL was initially designed to overcome the difficulties in measuring the quality of subjective services such as massage and call-center experience. This scale was later adopted in numerous IS studies because of its high contextual applicability in the IT industry (Van Dyke et al. 1997; Jiang et al. 2002). For example, Kettinger and Lee (2005) refined the SERVQUAL measures

and proposed a concept of the zone of tolerance (ZOT) that represents the gap between the desired and adequate service.

3 HYPOTHESES DEVELOPMENT

3.1 Effect of perceived initial product value on review confirmation

When shopping online, the first action of consumers is not reading consumer reviews but selecting a pool of products that they consider purchasing. However, a large number of product reviews exist in online shopping malls, thus discouraging consumers from reading reviews in detail. For example, Amazon has displayed 1,544 types of DSLR cameras as of October 2012. Even if consumers narrow down their choice to 12 MP to 13.9 MP DSLR cameras with full high-definition functions, 59 cameras remain for consideration. Reading the reviews of all 59 cameras is technically unfeasible for a consumer. Thus, consumers limit their product selection according to their needs and preferences before reading online reviews.

Such screening process prior to reading online reviews results in consumers building certain types of expectations toward products. For example, when reading the reviews of a Canon camera, consumers may have specific expectations such as "this camera will work well at night" or "this camera will mitigate blurry photos." Expectations can be formed by basic product information, such as price, popularity (i.e., bestseller lists), consumer rating, and seller-provided description. These expectations are mostly positive because consumers would not read reviews if otherwise. If the specifications of a product do not match the specific wants or needs of a consumer, then he or she will not read reviews related to that product.

Therefore, consumers read reviews not only to find new product information but also to confirm whether their expectations can be fulfilled. Before reading reviews, consumers create a frame of reference about a product. Thereafter, they compare their reference with the information obtained after reading reviews. For example, if a consumer expects that a camera is water resistant, then he or she can verify whether the camera has this feature by reading reviews. Specifically, if the consumer expects that the camera will work at night, then he or she will read reviews to confirm whether this camera satisfies his or her need. This confirmation process measures the perceived discrepancy of expectations from the initial reference point (Oliver 1980).

Whether expectations and confirmations are positively or negatively associated is not a simple question because of the inconsistency of the aforementioned relationship. Basically, a positive association is expected between expectation and confirmation if a positive relationship exists between expectation and satisfaction and between confirmation and satisfaction (Thong et al. 2006; Lin et al. 2005). Furthermore, given that review confirmation is highly personal and subjective, as well as based on the verbal descriptions of the product, high consumer expectations may provide additional positive impressions to consumers when reading various reviews.

However, the original ECT (Oliver 1980) states that (dis)confirmation is the "difference" between anticipated and received satisfaction without empirical support. In other ETC studies, the relationship between confirmation and attitude is tested (Bhattacherjee 2001; Lin et al. 2005; Thong et al. 2006), whereas that between expectation and confirmation is not. Kim et al. (2009) measure both expectation and confirmation and hypothesized that confirmation is "related to" expectation. The result shows a marginally negative (–0.098) relationship. We have developed the following hypothesis on the basis of these controversial discussions:

H1 – A consumer's review confirmation is related to his or her perceived initial product value.

3.2   Effect of review confirmation on purchase intention

By reading online reviews, consumers can estimate how much of their expectation will be fulfilled if they purchase the product. If a review matches the consumer's needs, then the consumer will have strong review confirmation, which positively influences the consumer's purchase intention. For instance, if a consumer seeking a low-noise vacuum cleaner finds a vacuum cleaner with numerous reviews verifying its low-noise feature, then his or her expectation on the product will be strongly confirmed and his or her purchase intention will increase. On the contrary, a consumer will disconfirm and not purchase the product if he or she reads reviews differing from his or her expectations. Thus, we have developed the following hypothesis on the basis of the causal relationship between confirmation and purchase intention:

H2 – A stronger confirmation forms a stronger purchase intention.

3.3   Effect of initial value on purchase intention

Online competition is fierce. Therefore, first impressions are crucial for online products. If a consumer has a negative first impression on a product, then this consumer will not consider this product for purchase. Consumers would not read reviews of products they deem unattractive. This explains why online websites use impressive colors and catch phrases to make good first impressions (Lindgaard et al. 2006). The ECT asserts that expectations have direct influence on satisfaction without the mediation of confirmation, thus implying that higher expectations correspond to higher satisfaction (Oliver 1980). First impressions are built only in seconds (Lindgaard et al. 2006) but lasts a lifetime (Saadé & Otrakji 2007). Moreover, recovering from a negative first impression is highly challenging (Muthukrishnan 2007). We develop the following hypothesis on the basis of these discussions:

H3 – A higher perceived initial value forms a stronger purchase intention.

3.4   Effect of the review tone

The review tone is not determined by a single or few reviews but by the majority who have consensus on the quality of a product. If the majority agrees that a product has high quality, then the overall review tone will be favorable. Average rating is one of the parameters representing the review tone. If the average rating of a product is high, then the review tone is also favorable. The review tone is also different from the level of confirmation because confirmation is made at an individual level, whereas the review tone, whether critical or favorable, is built at a group level. High-level confirmation of an individual can be made even when the overall review tone is critical.

The review tone significantly influences purchase decisions because it interacts with a consumer's personal expectation of a product. Consumers in general are vulnerable to external premises and do not always make rational decisions (Mummalaneni 2005). Consumers tend to analyze a situation according to their expectations (Wu et al. 2007). Consumers already have positive initial perceptions on a product. Therefore, we can presume that the review confirmation becomes stronger when the review tone is favorable because of high consumer expectations. In other words, when other consumers comment favorably on a product (i.e., high initial value), a consumer's confirmation on his or her expectation (i.e., the judgment that his or her expectation will be fulfilled) will be enhanced. The following hypothesis is proposed based on these discussions.

H4 –A more favorable review tone results in the perceived initial value having a stronger effect on review confirmation.

> *H4a – The effect of perceived initial value on review confirmation is stronger when the review tone is favorable than when the tone is moderate.*

H4b – The effect of perceived initial value on review confirmation is stronger when the review tone is moderate than when the tone is critical.

H4c – The effect of perceived initial product value on review confirmation is stronger when the review tone is favorable than when the tone is critical.

Extremity is another important aspect of the review tone. The extremity of a review is technically defined as the distance of the review from the neutral opinion. This concept represents the strength or density of opinions in the review, which usually contains words such as "very," "quite," or "really." As a construct indicating the expressiveness of reviews, the extremity of a review has often been discussed in literatures (Clemons 2007; Mudambi 2011). Forman et al. (2008) find that extreme reviews are more helpful than moderate reviews when buying books. In another study, Pavlou and Dimoka (2006) denote that extreme ratings are more influential than moderate ratings in eBay.

The extremity of the review tone is important in the expectation–confirmation context because extremity moderates the effect of confirmation on purchase intention. If the review tone is strong, either positively or negatively, then the impression a consumer receives from the review (i.e. confirmation) becomes stronger, which in turn increases the effect of confirmation on purchase intention. Positive confirmations significantly increase a consumer's purchase intention when reviews are favorable than when reviews are neutral. On the contrary, if the tone is critical, then disconfirmation becomes stronger, which in turn decreases the consumer's purchase intention. We develop the following hypothesis on the basis of these discussions:

H5 –The effect of review confirmation on final purchase intention is stronger when the review tone is extreme than when the tone is moderate.

H5a –The effect of review confirmation on final purchase intention is stronger when the review tone is favorable than when the tone is moderate.

H5b –The effect of review confirmation on final purchase intention is stronger when the review tone is critical than when the tone is moderate.
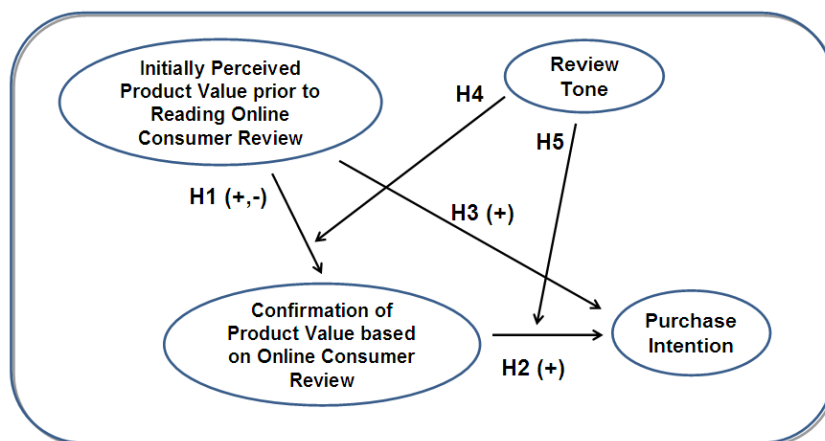

Figure 1.   Research Model

4   METHODOLOGY

4.1   Item development and review tone control

Items were developed as follows. Perceived initial product value was measured by asking respondents their perceived product value before showing them the consumer reviews. To develop items for

product value, first, keywords from relevant literature including valuable (value for money), good product (to buy), well made, useful, and worthy (offers value for money) were drawn (Sweeney & Soutar 2001; Teas and Agarwal 2000). Then questionnaires were constructed based on these keywords. For confirmation, we carefully modified the approach of Bhattacherjee (2001) for online consumer review contexts. For example, "My experience with using OBD was better than what I expected" was modified to "The product quality seen in the review seems better than what I expected about the product." For purchase intention, major prior studies were used as reference (van der Heijden & Verhagen 2004; Lee & Lee 2009). Appendix A displays the entire list of items.

To control the tone of reviews, we prepared 24 reviews that were equally divided to express critical, moderate, and favorable review tones. They were selected from the reviews of the bestselling smartphones in Amazon.com. Critical reviews were selected from the "most helpful critical reviews with one star," favorable reviews were selected from the "most helpful favorable reviews with five stars," and moderate reviews were selected from "helpful reviews with three or four stars." In selecting the reviews, the helpfulness (i.e., context quality) and the rating (i.e. extremity) of the reviews were considered important to help respondents perceived the difference among the tones.

4.2   Survey procedure

The survey was conducted as follows. First, three types of smartphones (i.e., A, B, and C) with similar price levels and specifications (e.g., color, size, and functionality) were shown to the respondents without consumer reviews. Respondents were then asked to indicate their perceived initial values of the three products. Any information that could imply a specific brand or product was hidden. To simulate a real shopping mall situation, the researchers explained to the respondents that these products were the bestselling items in major shopping malls; this was done to control for the positive first impression on the product before reading reviews.

After measuring the perceived initial values of the three smartphones, as provided by the respondents, the consumer reviews for each product were shown. The respondents were then asked to provide their confirmation level and purchase intention. We first showed product A with moderate reviews, and then asked their confirmation level and purchase intention of A. Next, we showed product B with critical reviews, and then asked their confirmation level and purchase intention of B. Finally, we showed product C with favorable reviews and measured confirmation level and purchase intention of C. Before the experiment, detailed explanation was provided to ensure that the respondents clearly understood the different tone of reviews of the products.

The smartphone was selected for the survey because of its popularity, online availability, and model diversity. More than a hundred types of smartphones are currently available in online shopping malls. Furthermore, the number of smartphone users is rapidly increasing, especially in Korea, where the penetration rate of smartphones is 59%, currently the second highest in the world[1]. The respondents were also asked whether they were currently using a smartphone or considering buying one in the future. If respondents answered negatively to both questions, they were excluded from participating in the survey.

5   RESULTS

Data was collected by Embrain (www.embrain.com), which is a professional market research company with more than 1.8 million panels in Asia. 276 respondents participated (Table 1) and the results indicate that 92% of them are currently using smart phones. Gender and age were controlled with equal portion to avoid bias.

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[1] http://www.korea.net/NewsFocus/Sci-Tech/view?articleId=102433

Age	Frequency (%)	Gender	Frequency (%)	Smartphone Usage	Frequency (%)
20-29	71 (25.7)	Male	141 (51.1)	Currently using a smart phone	255 (92.4)
30-39	70 (25.4)	Female	135 (48.9)		
40-49	68 (24.6)	**Total**	**276**	Considering buying a smart phone soon	21 (7.6)
50-59	67 (24..3)				
Total	**276**			**Total**	**276**

Table 1.   Respondent Demographics

5.1   Measurement model

Measurement model test analyses are summarized in Tables 2 and 3. Confirmatory factor analysis (CFA) was performed to test the validity of the constructs. All statistics in the three groups with favorable, moderate, and critical review tones show high levels of model fit (GFI = 0.96, 0.98, 0.97; RMR = 0.037, 0.011, 0.017; RMSEA = 0.070, 0.020, 0.056; AGFI = 0.92, 0.96, 0.93; NFI = 0.99, 0.99, 0.99).

The internal consistency and convergent validity of the constructs were tested by examining the items, including construct loading, composite reliability, and average variance extracted (AVE). All items exhibit loading values higher than the recommended levels (0.7) (Table 2). The values of composite reliabilities are sufficiently higher than 0.7 (Nunnally & Bernstein 1994), and the values of AVE are above 0.5 (Fornell & Larcker 1981). Discriminant validity was examined by comparing the square root of the AVE and off-diagonal construct correlations. All square roots of the AVE are greater than the off-diagonal construct correlations in the corresponding rows and columns (Fornell & Larcker 1981), thus indicating convergent consistency (Table 3).

Review Tone	Construct	Indicator	Standardized Loading	Measurement Error	Composite Reliability	AVE (Average variance extracted)
Favorable	IV	FIV1	0.94	0.12	0.93	0.81
		FIV2	0.94	0.12		
		FIV3	0.82	0.33		
	CF	FCF1	0.95	0.09	0.97	0.91
		FCF2	0.96	0.08		
		FCF3	0.95	0.09		
	PI	FPI1	0.94	0.12	0.97	0.91
		FPI2	0.97	0.06		
		FPI3	0.96	0.08		
Moderate	IV	MIV1	0.94	0.12	0.93	0.83
		MIV2	0.93	0.14		
		MIV3	0.86	0.26		
	CF	MCF1	0.95	0.10	0.97	0.91
		MCF2	0.97	0.06		
		MCF3	0.95	0.10		
	PI	MPI1	0.94	0.11	0.97	0.90
		MPI2	0.96	0.07		
		MPI3	0.94	0.11		
Critical	IV	CIV1	0.94	0.11	0.94	0.83
		CIV2	0.93	0.13		
		CIV3	0.86	0.27		
	CF	CCF1	0.93	0.14	0.97	0.91
		CCF2	0.97	0.06		
		CCF3	0.96	0.08		
	PI	CPI1	0.96	0.07	0.98	0.95
		CPI2	0.98	0.04		

		CPI3	0.97	0.05							
IV: Initial product value ; CF: Confirmation on review ; PI : Purchase intention.											

Table 2.   CFA Results

	Favorable Review Tone				Moderate Review Tone				Critical Review Tone			
	M(SD)	IV	CF	PI	M(SD)	IV	CF	PI	M(SD)	IV	CF	PI
IV	6.42 (1.67)	**0.90**			6.41 (1.69)	**0.91**			6.41 (1.67)	**0.91**		
CF	6.39 (1.68)	0.59**	**0.96**		5.68 (1.81)	0.37**	**0.96**		3.81 (1.82)	0.20**	**0.95**	
PI	7.14 (1.59)	0.44**	0.65**	**0.96**	5.69 (1.69)	0.38**	0.45**	**0.95**	2.68 (1.76)	0.14**	0.67**	**0.97**

** Correlation is significant at the 0.01 level (2-tailed).
The bold numbers in the diagonal row are square roots of the average variance extracted

Table 3.   Correlation Analysis Results

5.2   Testing H1, H2, and H3 through structural model path analysis

A structural model analysis was conducted to test H1, H2, and H3. The analysis is summarized in Table 4. The statistics in the three groups with favorable, moderate, and critical review tones show high levels of model fit, thus supporting the adequacy of the models. The path coefficients in three groups were then examined. Figure 2 shows that the path from initial value to confirmation (H1) and that from confirmation to purchase intention (H2) are significant in all groups; thus, H1 and H2 are supported. However, the path directly from initial value to purchase intention (H3) is significant only in the group with moderate review tone. The path from the initial value to purchase intention is not significant in the groups with critical or favorable review tones. Thus, H3 is partially supported. The significant paths are accepted at the significance level of 0.01. The R-squared values of purchase intention in the three groups are 0.45 (in favorable reviews), 0.27 (in moderate reviews), and 0.46 (in critical reviews), respectively. These results show that the explanation powers of the initial value and review confirmation for purchase intention is relatively stronger when the review tone is extreme

.

Fit index	Recommended Level	Structural Model		
		Favorable	Moderate	Critical
Absolute Fit Measures				
Chi-square test statistic (χ^2); *df*		55.95:24	26.62:24	44.63:24
p-value	> 0.05	0.00023	0.32246	0.00644
Goodness-of fit index (GFI)	> 0.80	0.96	0.98	0.97
Root mean square error of app. (RMSEA)	< 0.08	0.070	0.020	0.056
Root mean squared residual (RMR)	< 0.05	0.037	0.011	0.017
Incremental Fit Measures				
Adjusted goodness-of-fit index (AGFI)	> 0.80	0.92	0.96	0.93
Normed fit index (NFI)	> 0.90	0.99	0.99	0.99
Parsimonious Fit Measure				
Normed chi-square	1.00 ~ 3.00	2.33	1.11	1.86

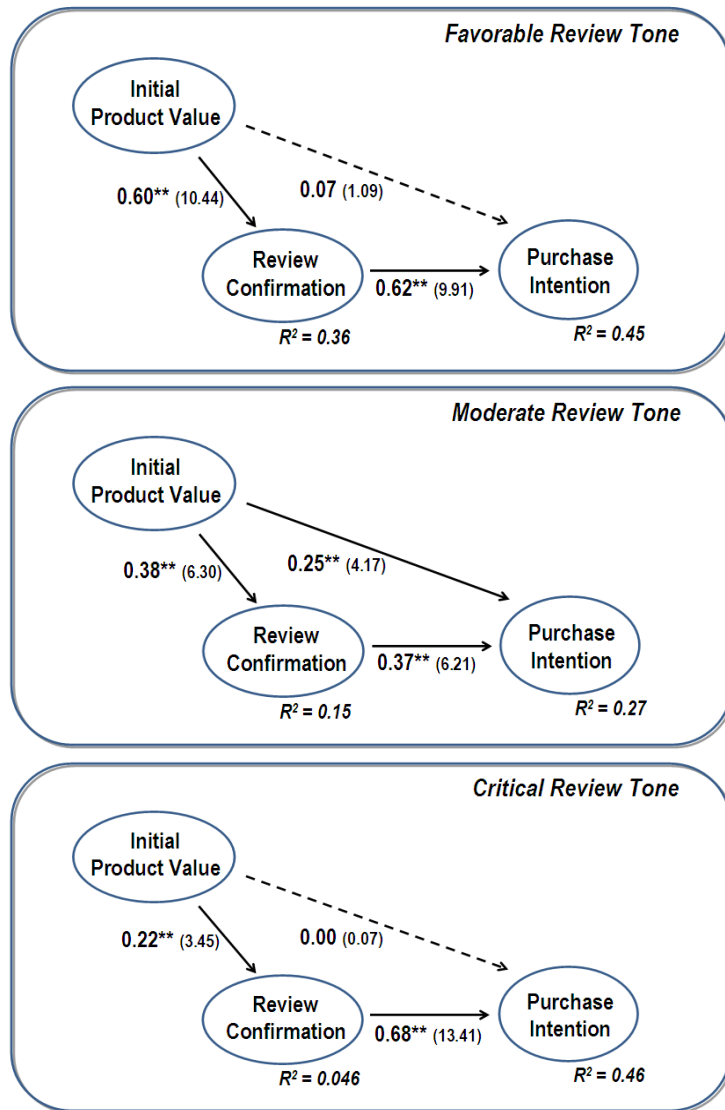*Table 4.   Fit-index of Structural Models*

Figure 2. SEM Result

5.3 Group comparison: H4 and H5 tests

For H4 and H5, we calculated the differences in chi-square value between the pooled model (i.e., the model using the entire data set) and the testing model (i.e., the model relaxing the assumption that target paths are the same between the groups) by using AMOS 7. If the chi-square values are significantly different between groups, the differences in path coefficients between groups are accepted.

The path from initial value to confirmation (H4) is significantly different between the favorable and moderate review groups ($\beta = 0.60 \rightarrow \beta = 0.38$, H4a is supported) and between the moderate and critical review groups ($\beta = 0.38 \rightarrow \beta = 0.22$, H4b is supported) (Table 5). Differences between the favorable and critical groups are also significant (i.e., H4c is supported). The path from confirmation to purchase intention (H5) is significantly different between the favorable and moderate groups (i.e., $\beta = 0.62 \rightarrow \beta = 0.37$, H5a is supported) and between the moderate and critical groups (i.e., $\beta = 0.37 \rightarrow \beta = 0.68$, H5b is supported). The summary of the hypotheses tests is presented in Table 6.

Comparison between	Chi-square/DF when paths are unconstrained	A→B	Chi-square/DF after constraining a path A→B	p-value	Path A→B are different across groups	Testing H
Favorable and Moderate	82.0/48	IV→CF	129.2 / 49	0.00	**<u>Yes</u>**	H4a
		CF→PI	136.2 / 49	0.00	**<u>Yes</u>**	H5a
		IV→PI	267.3 / 49	0.00	Yes	NA
Moderate and Critical	71.4/48	IV→CF	152.5 / 49	0.00	**<u>Yes</u>**	H4b
		CF→PI	190.6 / 49	0.00	**<u>Yes</u>**	H5b
		IV→PI	213.7 / 49	0.00	Yes	NA
Favorable and Critical	99.5/48	IV→CF	146.7 / 49	0.00	**<u>Yes</u>**	H4c
		CF→PI	153.7 / 49	0.00	Yes	NA
		IV→PI	284.8 / 49	0.00	Yes	NA

Table 5.   Group Comparison – H4 and H5 Test Results

	Tone of Review			Hypotheses Test Results
	Favorable	**Moderate**	**Critical**	
H1	Supported	Supported	Supported	Supported
H2	Supported	Supported	Supported	Supported
H3	Not supported	Supported	Not supported	Partially Supported
H4a	Supported			Supported
H4b		Supported		
H4c	Supported			
H5a	Supported			Supported
H5b		Supported		

Table 6.   Summary of Hypotheses Test Results

6   DISCUSSION

6.1   Summary of Finding

Different from the prior studies (Kim et al. 2009; Oliver 1980), positive relationship between expectation and confirmation is empirically supported in this study. This shows a strong tendency of customers who have high expectation on the product to believe as they want to believe, when reading online reviews. For consumers, when their expectations are high, favorable reviews look more favorable and critical review looks less critical. It supports the basic fact here again that the confirmation is based on a highly subjective judgment rather than objective one. While the statement in the original theory (Oliver 1980) that (dis)confirmation is a "difference" between anticipated and received satisfaction assumed that the consumer would judge rationally and objectively, the result in this study implies that consumers who read reviews in online shopping malls are not that rationale and objective but more subjective and emotional who have tendency to believe as he wishes.

Another interesting finding of the study is a low total impact of initial value on purchase intention under critical review tone. As shown in Table 7, total impact of initial value on purchase intention is distinctively low when the review tone is critical. Considering the fact that customers who are reading reviews usually have positive impression on the product (i.e. relatively high initial value), it is understandable that such impression is suddenly rejected if the review is different from expectation. As shown in the table, there is a clear distinction among the total effect of initial value between the groups. When the review tone is critical, initial value does not have direct impact and has low indirect impact through confirmation.

Groups under	Direct Effect (IV→PI)	Indirect Effect (IV→CF→PI)	Total Effect
Favorable Tone	-	0.37	0.37
Moderate Tone	0.25	0.14	0.39
Critical Tone	-	0.15	0.15

Table 7.   Total Effect of Initial Value on Purchase Intention

6.2   Academic contribution

The academic contribution of the study is multifaceted. First, the application of ECT to eWOM context enriches the understanding of the influence of online reviews, because it explains the reason why consumers respond differently to the same reviews. Two consumers reading the same reviews may behave differently because they have different types of expectations. The present study, therefore, argues that the effect of reviews should be examined along with the consumer's expectation before reading the reviews. ECT application enhances a consumer's understanding of online reviews, because it logically theorizes the relationship among expectation, confirmation, and the consequent behaviors (Oliver 1980). The theory also supports the notion that reading consumer reviews is highly subjective and is considered an individual activity that can be interpreted differently by each consumer. Most related studies have attempted to quantify and measure the impact of reviews objectively. However, the current study accepts the subjective nature of consumer reviews and examines their impact from the expectation-confirmation perspective.

Another academic contribution of the study is that it empirically tested the association between expectation and confirmation. Due to the methodological difficulty, most of prior ECT studies did not measure expectation but measured only the level of confirmation, after the treatment (Lin et al. 2005; Thong et al. 2006). The original theory stated the confirmation is a "difference" between anticipation and reception but theoretically it was not clear whether the association between expectation and confirmation is positive or negative (Kim 2009). This study, therefore, contributes to this theoretical vagueness that in eWOM context, the relationship between expectation and confirmation is undoubtedly positive. The result shows that the higher the expectation, the stronger confirmation is made. This also strengthens the argument that the interpretation process of online consumer review is highly subjective activity than it is thought.

Lastly, this study suggests an alternative approach on analyzing reviews that the tone of review can be an effective variable such as a specific word or rating. Prior studies on online reviews had attempted to quantify online reviews in micro level – counting their words or the length (Mudambi & Schuff 2010) – but due to the complexity of the contents and analysis, generalization of the implication was relatively intricate. Hence the present study uses the tone of review as a moderating factor and examines the marginal effect, because the tone does not capture the details or the single reviewer's opinion but shows the tendency of the most of the customers. It provides an advantage that it is easier to understand and manipulate. Namely, the study could have provided more parsimonious, consistent and generalizable result.

6.3   Practical Implication

This study emphasizes the importance of the impression and the expectation that a customer build 'before' reading online reviews. While most of prior online review studies analyze the direct impact of the contents, which is not controllable by the seller or manufacturer, this study shows that the actual impact of online reviews is the interaction of the expectation that a customer had before reading the reviews. By including the factors that are mostly manageable by the seller (i.e. a specific expectation on the product) in the scope of review impact analysis, this study gives practitioners an insight that it

is important, even in analyzing the review impact, to manage properly the process of building pre-perception in the initial stage of online shopping.

This study also shows practitioners how and when the initial impression (i.e. the expectation consumer had before reading reviews) has critical impact. As shown in the result, strong confirmation significantly weakens the impact of initial perception. When the tone of review is highly negative or positive (i.e. when it is extreme), the initial impression suddenly diminishes its direct impact on purchase intention. However in reality, such strong confirmation is not often made (i.e. most of the products do not have extreme evaluation but have mixture of moderate reviews) because of the natural diversity in peoples' preference. Most of bestsellers in major online shopping malls have rather moderately positive review tones. This study shows, therefore, except for the few cases with extreme review tones, most of times the impact of initial impression is significant, and tells practitioners its importance.

Another practical implication this study provides is that it treats the tone of reviews as a moderator. Compared to rating, such as 3.5 out of five, the tone of the reviews is more subjectively and individually perceived. It is harder to capture, quantify and examine impacts. However, it is clear that the tone of review – whether it is critical or favorable – has critical impact on consumer behavior. This study, therefore, controls the tone of reviews into a moderating factor, instead of a mediating factor, and investigates its influences from rather relative point of view (i.e. compares the impact of reviews when it is critical moderate and favorable). The result is very practical for managers because it shows the impact of tones from comparative manner so that managers can easily understand and apply the implication.

6.4   Limitation and Future Study

One of the limitations this study bears is that it tests hypotheses for one type of product. Even though the selected smartphone is widely sold in online, it is well expected to test the hypotheses for other types of the products in the future. Also, interaction effect between the review tone and other factors besides initial value can be discussed for future research. There are other important factors such as brand and price that affect consumer decision making. If those factors are considered together with the impact of reviews, it will help researchers and practitioners understand the online review context in-depth.

Appendix

Construct	Items	Questionnaires
(Initially) Perceived Product Value	PV1	This product seems to offer value for money.
	PV2	This product looks valuable for money
	PV3	This product seems to be a good product to buy
Confirmation of Product Value based on Consumer Reviews	CF1	The product quality indicated by the review seems better than what I expected of the product.
	CF2	According to the reviews, this product seems better than what I expected.
	CF3	Overall, most of my expectations would be confirmed if I purchase this product.
Purchase Intention	PI1	I am positive towards buying this product.
	PI2	I have the intention of buying this product.
	PI3	I think it is a good idea to buy this product.

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