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Valence or Volume? Maximizing Online Review Influence Across Consumers, Products, and Marketing

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VALENCE OR VOLUME? MAXIMIZING ONLINE REVIEW INFLUENCE ACROSS CONSUMERS, PRODUCTS, AND MARKETING TACTICS

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ABSTRACT

Evidence shows that products with online reviews have a higher chance to stay in the consideration set of consumers than products with no online reviews do. Online reviews, as consumer-generated content, affect consumers' purchase decision-making process. Most of the studies in this area have looked at valence and volume of online reviews. Generally, valence and volume of online reviews are considered to positively influence sales; however, the findings in the literature are inconclusive. While some studies have reported a positive relationship between valence/volume and sales, others have failed to find any significant relationship. Using both lab experiments and real-world data, this dissertation addresses the conflicting findings from previous studies by introducing the role of the individual, the product, and firm-generated promotional message.

In the first essay of the dissertation, I attempt to explain the inconsistencies in the literature by examining the moderating effect of regulatory focus on the relative role of valence versus volume of online reviews in consumer purchase decisions. Regulatory focus theory suggests that people tend to have either a promotion or a prevention orientation in approaching their desired goals. The current research argues that depending on consumers' regulatory orientation, the effect of either review valence or review volume on consumers' likelihood to purchase the product will become more salient. Moreover, specific products also activate a certain regulatory orientation. Therefore, depending on the products' regulatory orientation,

valence or volume of online reviews (i.e. valence and volume) will become more or less influential across different product categories.

The second essay of the dissertation investigates the use of firm-generated promotional message to maximize online review volume versus valence effects. Specifically, it examines how a common online retail-marketing tactic, scarcity appeal, can be used to accentuate the effect of online review volume and valence on consumers' purchase decisions. I argue that the mere presence of a scarcity appeal and the specific type of scarcity appeal used can influence the extent to which consumers weigh valence versus volume information. The integrative approach developed in this research advocates the simultaneous consideration of firm marketing tactics and consumer-generated content. It argues that firm-level actions can interact with online review components (i.e. volume and valence) to affect sales.

DEDICATION

This dissertation is dedicated to my parents, Amenehkhatoon Namdaraliabadi and Mohammadhadi Kordrostami, for always believing in me.

To my love, Vahid, for his unconditional love and support not only through my Ph.D. journey but also in life.

To my beautiful sister, Melika, for being such an encouragement in life.

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ESSAY 1

WHICH ONE MATTERS? VALENCE OR VOLUME?

INVESTIGATING THE MODERATING ROLE OF REGULATORY FOCUS

Introduction

Evidence shows that products with online reviews have a higher chance to stay in the consideration set of consumers than products with no online reviews do (Park and Nicolau 2015). Components of online reviews, as consumer-generated content, affect consumers' purchase decision-making process. Most of the studies in this area have looked at valence and volume of online reviews. Generally, valence and volume of online reviews are considered to positively influence sales; however, the findings in the literature are inconclusive. While some studies have reported a positive relationship between valence/volume and sales, others have failed to find any significant relationship (See table 1 for a summary of related studies).

This research attempts to explain the inconsistencies in the literature by examining the moderating role of regulatory focus in the relationship between online reviews' volume/valence and consumers' likelihood to purchase products. Regulatory focus theory (Higgins 1997) suggests that people tend to have either a promotion or a prevention orientation in approaching their desired goals. Current research argues that depending on consumers' regulatory orientation, the effect of either valence or volume of online reviews on consumers' likelihood to purchase the product will become more salient. Moreover, products are also associated with different regulatory orientation (Mourali, Bockenholt and Laroche 2007; Ku, Kuo and Kuo 2012). Therefore, I argue that depending on products' regulatory orientation, one of the two main

components of online reviews (i.e. valence and volume) will become more influential in affecting consumers' purchase decision-making processes.

The proposed conceptual framework (Figure 1) will extend our knowledge of consumers' online shopping behavior by examining the complexities of the relationship between online review volume and valence and purchase intentions, and studying the moderating role of customer characteristics and product characteristics in influencing consumers' online shopping behavior. Furthermore, this study will enable practitioners to more effectively fine tune their marketing apparatus based on the idiosyncrasies of their consumer and product characteristics.

Moreover, current research will use both experiments and actual data from Amazon.com (hereafter Amazon). Previous studies have mainly used either secondary data (e.g., Chen, Woo, and Yoon 2004; Reinstein and Snyder 2005; Liu 2006; Chevalier and Mayzlin 2006; Dellarocas, Zhang, and Awad 2007; Zhu and Zhang 2010; Ludwig et al. 2013; Liu and Park 2015) or experiments (e.g., Park, Lee, and Han 2007; Sher and Lee 2009; Vermeulen and Seegers 2009; Bae and Lane 2011; Sparks and Browning 2011; Mauri and Minazzi 2013; Tsao et al. 2015). The multi-method approach of the current research will enhance the reliability and generalizability of the future findings.

This essay is organized as follows. First, the relevant literature on online review volume and valence is synthesized. Second, the conceptual framework of this study is presented. Third, the research hypotheses are discussed. Finally, three different studies that are conducted to test the hypotheses are presented.

Review of The Literature

This section is focused on the review of the relevant literature. First, a summary of specific metrics of online reviews (valence and volume) research is presented. Then, the existing inconsistencies in the literature regarding the impact of online reviews volume and valence on sales are discussed. Finally, regulatory focus theory is introduced as an explanation for the above-mentioned inconsistency.

Online Reviews

Online review is defined as "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet" (Hennig-Thurau et al. 2004, p. 39). Suppliers in the marketplace have information that consumers do not have, causing information asymmetry in the marketplace (e.g., Nelson 1974). Chen and Xie (2005) argued that online reviews can alleviate this problem and that online reviews can affect a firm's sales by increasing consumers' knowledge of products. Using online reviews, consumers can infer the quality and reliability of what is being purchased and decrease their search cost. In a later study, Chen and Xie (2008) introduced online reviews as a new element in the marketing communication mix; online reviews can work as "free sales assistants" (Chen and Xie 2008, p. 479).

In the following section, an overview of relevant literature over valence and volume of online reviews, which are two main components of it, is provided. Moreover, the existing mixed results over the impact of valence and volume of online reviews on sales is discussed.

Online Reviews Valence and Volume

Online reviews volume and valence have been widely studied in the literature. Investigating the impacts of online reviews volume and valence on sales is the main topic of interest in the stream of research related to impacts of online review volume and valence. Table

(1) provides a summary of these research studies. Furthermore, the next four sections will discuss valence, negativity bias, volume, and the existing mixed results over the impact of online reviews volume and valence.

TABLE 1- SUMMARY OF RESEARCH ON ONLINE REVIEW VALENCE AND VOLUME

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
Chen, Woo, and Yoon (2004)	Books	Amazon	610 different books	Number of reviews, Average rating of reviews	Sales prediction	Number of reviews was positively related to sales. Review valence had no effect on sales.
Reinstein and Snyder (2005)	Movies	Reviews by two expert critics: Gene Siskel and Roger Eber	56 movies	Positive expert reviews	Opening weekend of box office revenue	Positive expert reviews had a significant influence on the demand for dramas and narrowly released movies.
Clemons, Gao, and Hitt (2005)	Beer	Craft beer industry data, online review data from ratebeer.com	31000 beverages	Variance of ratings, average rating	Sales growth rate	Both of the independent variables were positively related to sales growth rate.
Liu (2006)	Movies	Yahoo movies website	40 movies	Number of reviews, Average rating of reviews	Box office sales	Number of online reviews was positively associated with box office sales. Average rating of reviews had no significant relationship with box office sales.
Chevalier and Mayzlin (2006)	Books	Amazon and Barnsandnobles.com	1636 different book titles	Number of reviews, Average rating of reviews	Sales rank	Both Number of reviews and average rating of reviews were positively related to sales rank of the book.
Dellarocas, Zhang, and Awad (2007)	Movies	Yahoo! Movies Boxofficemojo.com Hollywood reporter	80 movies	Genre and MPAA Ratings, Prerelease Marketing and Availability, Star Power, Release Strategy, Professional Critics, and User Reviews	Forecast a movie's revenue trajectory from early (opening weekend) box office and online review data.	Number of online reviews, average rating of reviews, and dispersion of reviews were all significantly related to higher future sales of movies.
Park, Lee, and Han (2007)	Portable Multimedia Player (PMP)	Experiment	2 (Quality of online review: high vs. low) * 2 (quantity of	Quantity of online reviews, quality of online reviews, and the	Purchase intention	Higher number of online reviews increased the purchase intention. Quality of online reviews were positively associated with purchase intention. Moreover, low-

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
			online reviews: high vs. low) * 2 (involvement: high vs. low)	moderating role of involvement		involvement consumers were more affected by higher number of online reviews; however, high-involvement consumers were more affected by higher quality of online reviews.
Sen and Lerman (2007)	Five utilitarian product categories (cellphones, digital cameras, PDAs, computer monitors and printers) and five hedonic product categories (music CDs, fiction books, general magazines, movie videos, and DVDs)	Observation study from the Web site of a leading e-retailer	100 reviews were analyzed	Review valence, moderating role of product type (utilitarian vs. hedonic)	Review usefulness	Product type moderated the relationship between review valence and review usefulness. In addition, negativity bias existed for online reviews of utilitarian products.
Duan, Gu, and Whinston (2008 a)	Movies	Variety.com Yahoo! Movies Boxofficemojo.com	71 movies	Number of reviews, Average rating of reviews	Box office sales prediction	Number of online reviews was positively associated with box office sales. Average rating of reviews had no significant relationship with box office sales.
Sher and Lee (2009)	Cellphone	Experiments	278 undergraduates	Quality of online review, quantity of online reviews	Purchase intention	For consumers with low level of skepticism, higher number of online reviews was positively related to their purchase intention. Consumers with high level of

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
						skepticism were not persuaded by quality and quantity of online reviews.
Vermeulen and Seegers (2009)	Hotels	Experiment	168 participants	Review valence, hotel familiarity, and reviewer expertise	Hotel awareness and hotel consideration	Both positive and negative reviews enhanced hotel consideration as they increased awareness among customers.
Ye, Law, and Gu (2009)	Hotels	Data from Ctrip.com	248 hotels	Valence of ratings, variations of ratings	Number of reviews as a proxy of Online booking	Valence of ratings was positively related to online booking, variations of ratings in negatively related to online booking.
Zhu and Zhang (2010)	Video games (for Xbox and PlayStation 2)	Data on Console sales and games sales from NPD	220 game titles	Number of reviews, Average ratings of review, and the variation of ratings	Sales	All three aspects of online reviews influenced the sales of less popular online games.
Chintagunta, Gopinath, and Venkataraman (2010)	Movies	Yahoo! Movies	148 movies	Average rating, volume of ratings	Opening day gross for a title in a local geographic market	Both volume and valence were significantly related.
Amblee and Bui (2011)	Shorts e-book (digital microproducts)	Amazon	133 different shorts e-book	Average rating, number of ratings, author rating,	Sales rank	There was no relationship between average customer ratings and sales for the product. Number of ratings was positively associated to sales of the product.
Bae and Lane (2011)	Digital Camera	Experiment	150 participants (75 males, and 75 females)	Online review valence, moderating role of gender	Purchase intention	The effect of online reviews on purchase intention is stronger for females compared with males. The negativity effect was more evident for females.
Sparks and Browning (2011)	Hotels	Experiment	554 respondents	Target of complaint, Overall valence of ratings, Frame, and Ratings	Booking intentions, and levels of trust in the target hotel	Average rating increased trust among consumers. It also increased booking intention.

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
Ye et al. (2011)	Hotels	Data from Ctrip.com	1639 hotels	Valence of ratings, variations of ratings	Number of reviews as a proxy of Online booking	There was a positive relationship between valence of online reviews and online booking. Variation of ratings had no significant effect.
Cui, Lui, and Guo (2012)	Consumer electronics (search product) and video games (experience products)	Amazon	332 new products	Valence of reviews, volume of reviews, valence of page views, moderating role of product type (search vs. experience) and the stage in product life cycle (PLC)	Sales rank	Valence of reviews and volume of pages views had a stronger effect on sales for search products. Volume of reviews had a stronger effect for experience products. Volume of online reviews was most important at the early stages of PLC, and it decreased over time.
Öğüt and OnurTaş (2012)	Hotel	Booking.com	388 hotels in London, 562 hotels in Paris	Valence of customer rating	Price for room, sales per room in the hotel (number of reviews as a proxy for sales)	Higher customer ratings significantly increased online hotel room sales.
Ho-Dac, Carson, and Moore (2013)	All the models in Blu-ray category (emerging product category), DVD player category (mature product category)	Online reviews and products from Amazon, Ad expenditures from Nielsen	78 models in Blu-ray category, 51 models in DVD player category	Cumulative numbers of positive and negative online reviews for the brand, advertising expenditures, and the number of models in the product line of the brand, and moderating role of bran equity	Sales rank	Positive online reviews would increase the sale of products with less brand equity. For products with high brand equity, online review did not matter as much. Brand equity resulted in higher sales, and that in turn would result in higher online reviews. There was a feedback loop.
Ludwig et al. (2013)	Books	Amazon	591 books	Positive affect, negative affect,	Conversion rate	Number of reviews was positively related to conversion rate. Average

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
				review quantity, star rating, variance in star rating		rating had no significant effect on conversion rate.
Mauri and Minazzi (2013)	Hotels	Experiment	Scenario 1 (111 participants) Scenario 2 (103 participants) Scenario 3 (135 participants)	Review valence, level of expectation	Purchase intention	Results showed that purchase intention and level of expectation of customers regarding hotel services were both positively correlated to valence of online reviews.
Wu (2013)	Study 1: Books Study 2: Restaurants Study 3: Restaurants	Study 1: Amazon Study 2: 3 (review valence: high-mixed-low) *2 (reputation: high-low) experiment Study 3: 2 (baseline valence: positive-negative) *2 (review valence (positive-negative)	Study 1: Customer reviews for top 100 best-selling book on Amazon Study 2: 292 MTurk respondents Study 3: 205 MTurk respondents	Review valence, reputation of restaurants, baseline valence of restaurant	Review helpfulness	Three studies showed that negativity bias was overrated in consumer behavior literature, and if the quality of online reviews were controlled, the negativity bias would be attenuated.
Zhao et al. (2013)	Books	Panel data	panel data set of 1,919 book purchases by 243 consumers	Number of ratings, average of review ratings	Consumer choice	Both number of rating and average ratings were positively related to box-office sales of movies.
Blal and Sturman (2014)	Hotels	Sales data: STR global Online review data: Tripadvisor.com	Economy: 67 Midscale: 18 Upper midscale: 42 Upscale: 78	Valence of reviews, volume of reviews, moderating role	Hotel sales performance (Revenue per available room (RevPAR))	Valence and volume of online reviews were correlated. Although volume of online reviews was positively related to RevPAR but

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
			Upper upscale: 66 Luxury: 48 (Sum:319 hotels)	of industry segments		this effect was not significant for higher end hotels. Moreover, the valence of online review had a greater effect for more luxurious hotels.
Xie, Zhang, Zhang (2014)	Hotels	Panel data analysis of online consumer reviews and management responses	843 hotels	Overall rating, attribute ratings of purchase value, location and cleanliness, variation and volume of consumer reviews, and the number of management responses	Hotel performance	Review volume and valence were positively related to hotel performance. Review volume moderated the relationship between review valence and hotel performance.
Tsao et al. (2015)	Hotels	Experiment	Study 1: 2 (Valence)* 2(volume), 142 participants Study 2: 2 (Valence)* 2 (volume) * 2 (conformity), 391 participants	Review valence, review volume, conformity-level of customers	Consumer booking intention	Positive online reviews were more effective on consumer booking intentions compared with negative online reviews. Positive online reviews were more important for consumers with high level of conformity. Larger amount of online review was shown to be more influential for consumers with low level of conformity.
Ladhari and Michaud (2015)	Hotels	Experiment	Study: 2 (valence) * 2 (Star rating of hotels)	Valence of comments, moderating role of trust in comments	Attitude towards hotel, trust in hotel, perceived quality of hotels, and booking intentions.	The comments generated on Facebook impacted booking intentions. Comments that are more positive would result in more positive booking intention. It also positively affected attitude, trust, and perceived quality.

Author(s)/Year	Product	Data/Method	Sample Size	Independent Variable	Dependent Variable	Results
Liu and Park (2015)	Restaurants	Yelp.com	2500 (35 restaurants) reviews and 2590 (10 restaurants) reviews about restaurants located in London and New York City	Messenger element (i.e., identity disclosure, expertise, and reputation), quantitative facets of online messages (i.e., review valence and elaborateness) and the qualitative facet of the messages (i.e., enjoyment and readability of the reviews)	Perceived helpfulness of online reviews	Review ratings positively affected perceived helpfulness.
Park and Nicolau (2015)	Restaurants	Yelp.com	45 restaurants in London and New York	Review ratings	Usefulness and enjoyment	Extreme ratings (both positive and negative) were perceived to be more useful compared with moderate ratings.

Online Review Valence

Definition. Valence is one of the most important attributes of online reviews. Valence of online reviews refers to the positive or negative nature of online reviews. In the literature, review valence has been studied as a proxy for product quality, especially for experiential and credential quality (Bae and Lee 2011). Valence helps to reduce information asymmetry that exists in the marketplace. In studying the effect of online reviews, valence matters, because based on signaling theory (Spence 1973) positive online reviews lead to higher perceived quality and in turn, enhances consumers' attitude towards products (Mahajan, Muller, and Kerin 1984; Liu 2006). This effect is called "persuasive effect" of online review (Liu 2006, p. 76).

The Effects of Online Reviews Valence. Extant literature shows that positive online review positively influences firm performance. During the past decade, numerous studies have shown the importance of valence of online reviews on increasing sales (e.g. Chevalier and Mayzlin 2006), increasing helpfulness rating of online reviews (e.g., Sen and Lerman 2007; Park and Nicolau 2015), consumers' choice and booking intentions (Vermeulen and Seegers 2009; Ye et al. 2011; Sparks and Browning 2011; Ogunt and Onur Tas 2012; Floh, Koller, and Zauner 2013; Mauri and Minazzi 2013).

Online Review Valence Effects on Sales. Positive online reviews are positively related to sales. For example, Clemons, Gao, and Hitt (2005) investigated the role of the valence of online reviews in Beer industry. They showed that positive online reviews were positively associated with sales growth rate. Chevalier and Mayzlin (2006) studied the effect of online review valence on sales of books on Amazon and Barnesandnoble.com and showed that online reviews valence was positively associated with sales of books on both websites. Additionally, Zhu and Zhang (2010) demonstrated that online reviews valence positively influenced the sales of less-popular

video games. Moreover, Blal and Sturman (2014) investigated online reviews and sales data on Tripadvisor.com and STR Global. They showed that positive valence of online reviews positively influenced sales of luxurious hotels.

Online Review Valence Effects on Helpfulness Rating. Numerous studies have shown that valence of online reviews influences the helpfulness rating that they will receive. For example, Sen and Lerman (2007) investigated the effect of online review valence on its helpfulness ratings. They incorporated the moderating role of product type (i.e. utilitarian vs. hedonic) on this relationship. The results of their three studies showed that online review valence significantly affected online reviews helpfulness ratings. Moreover, there was negativity bias in evaluating online review valence by consumers, but only for utilitarian products (Not hedonic products). In other words, for utilitarian products, negative reviews had a stronger effect on consumers' behavior than positive reviews. For utilitarian products, on the other hand, positive and negative reviews equally influenced consumers' purchase behavior. Additionally, Park and Nicolau (2015) analyzed 5,090 online reviews on 45 restaurants in London and New York on Yelp.com. They assessed the effect of the valence of online reviews on usefulness and enjoyment. Based on their results, extreme ratings (both positive and negative) had a stronger effect on usefulness and enjoyment of consumers.

Online Review Valence Effects on Consumers' Choice and Booking/Purchase Intentions. Numerous studies have used different theories to explain the effects of online reviews on consumer behavior. For example, Vermeulen and Seegers (2009) used consideration set theory model (Roberts and Lattin 1991) to study the impact of online hotel review on consumers' choice. Specifically, they looked at the moderating role of review valence, reviewer expertise, and consumer familiarity with the hotels on this relationship. The results suggested that both

negative and positive online reviews enhanced awareness. Moreover, positive online reviews improved attitudes towards hotels. They did not find any significant results for reviewer expertise. The impacts of positive and negative online reviews were stronger for lesser-known hotels compared to that of well-known hotels. Furthermore, Ye et al. (2011) analyzed online reviews data on a major travel agency website in China (Ctrip.com). Their results indicated that the positive valence of online reviews for a hotel would lead to an increase of booking for that hotel. Additionally, Sparks and Browning (2011) showed that when the overall valence of ratings for a hotel was positive, the booking intention was higher, and this, in turn, enhanced consumers' trust in the hotel. Ogut and Onur Tas (2012) also investigated the online bookings for Paris and London on Booking.com. Specifically, they looked at star ratings and customer ratings of hotels and the impact of those on hotel room sales and hotel room price. Their investigation showed that the valence of online reviews increased sales of hotel rooms in both cities. However, contrary to their expectation, there was no relationship between the star rating of a hotel and hotel room sales. In addition, when the star rating of a hotel was higher, the price per room was increased, and this made consumers more sensitive to online reviews. Based on Ogut and Onur Tas (2012) results, positive online reviews enabled hotels to charge higher prices for their rooms. Moreover, Floh, Koller, and Zauner (2013) took a deeper look into the relationship between online reviews and purchase intention. By running three different experiments, they demonstrated that valence intensity of online reviews moderated this relationship for books, hotels, and running shoes. They also showed that the effect of valence intensity is asymmetric, confirming the negativity effect. Finally, Mauri and Minazzi (2013) studied the effect of online reviews posted on "non-transactional" websites (e.g. Tripadvisor.com, Lonelyplanet.com), on the decision-making process and service expectations of customers. The results of their three

experiments showed that valence of online reviews (positive vs. negative) on non-transactional websites were positively associated with consumers' purchase intentions. Also, positive online reviews would increase customers' expectations from the given hotel; this has interesting managerial implications as it indicates that positive online review raises the bar for everyone, even for the firm itself. Another important question that was answered in this research was if companies should address negative reviews on these non-transactional websites. Interestingly, addressing these negative reviews by managers negatively affected consumer purchase intention; they explained this by referring to these actions as to be "advertising activity" and the fact that consumers have not a positive attitude towards advertising attempts of marketers.

It is noteworthy to point out that there are gender differences in perception of online review metrics: review valence has a stronger effect on females' purchase intentions than males' (Bae and Lee 2011).

As it was discussed in this section, the valence of online reviews significantly affects purchase intention, consumers' choice, and helpfulness rating. However, the strength of the impact of positive and negative reviews is different from one another. Many studies in the online review literature demonstrated that negativity bias exists. That is the effect of negative online reviews is more pronounced compared with positive online reviews. In the next section, the phenomenon of "negativity bias" in online reviews literature is presented.

Negativity Bias. It has been shown when consumers evaluate online review valence; they might have a negativity bias. This has been mostly explained by using the loss aversion principle in prospect theory (Kahneman and Tversky 1979), which says that a potential loss will have a stronger effect on consumers' decision-making compared with a potential gain.

Extant literature shows that negativity bias explains the efficacy of online reviews in affecting consumers' behavior (Chevalier and Mayzlin 2006; Sen and Lerman 2007; Papathanassis and Knolle 2011), and sales (Chen, Wang, and Xie 2011; Cui, Lui, and Gu 2012). For example, Chevalier and Mayzlin (2006) studied book sales on Amazon and Barnsandnobles.com. They showed that the impact of one-star online reviews was greater than the impact of five-star online reviews. Additionally, Sen and Lerman (2007) showed that negativity bias exists on the helpfulness rating of online reviews for utilitarian products. For utilitarian products, negative reviews received a disproportionately larger number of helpfulness rating than positive reviews did. Furthermore, research shows that the effect of negativity bias is stronger on females than on males (Bae and Lee 2011). In a similar vein of research, Chen, Wang, and Xie (2011) showed that negative word of mouth (WOM) is more influential on sales than positive WOM. Moreover, Cui, Lui, and Gu's (2012) study of the impacts of valence and volume of online reviews for new products on Amazon, also showed that negativity bias exists. In an interesting research, Berger, Sorensen, Rasumussen (2010) demonstrated that negative reviews could even increase the sales of products. They argued that it depended on the existing awareness and accessibility of products. They analyzed the information of sales and New York Times reviews for 244 different titles of books. The results showed that for less familiar authors the negative reviews increased the sales. However, for well-established authors, negative reviews could significantly harm sales.

Moreover, in negativity bias stream of research, Bambauer-Sachse and Mangold (2011) examined the effect of negative online reviews on consumer-based brand equity. They conducted experiments and studied computer notebook and digital cameras. Their results showed that

negative online reviews negatively affect consumer-based brand equity, which eventually lead to brand equity dilution.

Wu (2013) challenged the negativity bias. By conducting three empirical studies, he tried to show that the expression of "bad is stronger than good" is not always true. Contrary to the results of previous empirical studies, which suggested that consumers perceive negative reviews to be more helpful, the result of his content analysis of a sample of reviews on Amazon demonstrated that when review quality was controlled; this effect would be significantly attenuated.

Online Reviews Volume

Definition. Volume is another important attribute of online reviews. It is the number of online reviews. Previous empirical studies have shown that volume of online reviews can increase awareness among consumers; it can also be used as a cue to increase the believability of online reviews because a higher number of online reviews increase the reliability and correctness of the content of online reviews (Salganik and Watts 2008).

The Effects of Online Reviews Volume. Numerous studies have investigated the impacts of online reviews volume on sales (e.g., Chen, Woo, and Yoon 2004; Chevalier and Mayzlin 2006; Liu 2006; Zhu and Zhang 2010). In this line of research, Chen, Woo, and Yoon (2004) studied 610 different titles of books on Amazon and showed that the number of online reviews was positively associated with sales. They found this effect to be stronger for less-popular books. They explained this result by the search-cost argument. Customers want to decrease their search cost, and a higher number of online reviews is a helpful cue indicating the reliability of reviews, hence positively affecting consumers' purchase decision-making process. Moreover, Chevalier and Mayzlin (2006) investigated online reviews of books on Amazon and Barnsandnobles.com.

The results indicated that higher number of online reviews was related to higher sales of that book on both websites. Liu (2006) and Duan, Gu, and Whinston (2008 a) also showed that higher number of online reviews for a movie is positively associated with future box office sales. In addition, Chintagunta, Gopinath, and Venkataraman (2010) investigated 148 movies on Yahoo! Movies. Their results indicated that higher volume of online review is positively related to opening day gross sale for a title in a local geographic market. Furthermore, the research of Zhu and Zhang (2010) in video games industry showed that an incremental increase in the number of online reviews for less popular games would increase sales. This showed that higher amount of online reviews was an indication of the reliability of information conveyed via online reviews.

In investigating the effects of online reviews volume, other studies introduced moderating variables to show the importance of online reviews volume on purchase intentions of consumers. For example, Park, Lee, and Han (2007) used experimental design to show that consumers' involvement with product category moderated the relationship between online reviews and purchase intentions. They used portable multimedia player (PMP) as the product of their study and showed that in general, high-quality online reviews increased purchase intentions. In addition, purchase intention of the consumer with a higher level of involvement was more affected by the quality of online reviews. However, purchase intention of consumers with a lower level of involvement was more affected by a higher number of online reviews. Moreover, Sher and Lee (2009) applied elaboration likelihood model (ELM) and conducted an experiment to investigate the effect of quality and quantity of online reviews on consumers' purchase intention. Based on their experiment, for consumers with a high level of skepticism, none of quantity and quality of online reviews affected their purchase intention. However, for consumers

with a low level of skepticism, a higher number of online reviews was positively related to their purchase intention.

Inconsistent Results on the Impacts of Online Reviews Volume and Valence

There are mixed results in literature over the impact of online reviews volume and valence and sales performance. Many studies have found significant results for the volume of online reviews (but not the valence) (Chen, Woo, and Yoon 2004; Liu 2006; Duan, Gu, and Washington 2008 a, b; Amblee and Bui 2011). Chen, Woo, and Yoon (2004) found a positive relationship between the number of online reviews and sales of books on Amazon, while they did not find a significant relationship between online review valence and sales. Moreover, Liu (2006) and Duan, Gu, and Whinston (2008 a, b) showed that WOM volume had significant explanatory power for box office revenues. Their results indicated that most of this power came from the volume of WOM (and not from its valence). Duan, Gu, and Whinston (2008 a) argued that in contrast to previous studies, which considered the online review to be an exogenous factor, it should be treated as both endogenous and exogenous (i.e. influencing and influenced by movie sales). In a similar vein, Duan, Gu and Whinston (2008 b) designed a dynamic model by analyzing WOM and box office performance. They showed that WOM valence and box office revenue influence WOM volume. WOM volume, in turn, results in higher box office performance. Furthermore, Amblee and Bui's study (2011) over sales of microproducts (shorts e-book) on Amazon showed that higher number of online reviews was associated with better sales rank on Amazon. However, the same effect was not observed for online review valence. Forman, Ghose, and Wiesenfeld (2008) showed the effect of identity disclosure of reviewers and product sales on Amazon; they did not find any significant effect for the valence of online reviews on

product sales. Although Liu (2006) found a significant relationship between WOM's volume and box office sales, he did not find the same effect for WOM valence.

There are also studies that have found significant results for valence of online reviews (but not volume). For example, Sridhar and Srinivasan (2012) studied 7499 online reviews for 114 hotels in Boston (as a commercial destination) and Honolulu (as a holiday destination). They showed that individuals' rating behavior is affected by the social influence of others. Building on social influence theory, they demonstrated that social influence made highly positive online reviews a double-edged sword. The social influence of others intensified the negative effect of product failure; however, it strengthened the benefits of product recovery. In their analysis, the volume of previously posted online reviews had no effect on individual's ratings (p. 81). Moreover, Godes and Mayzlin (2004) argued that WOM is endogenous and high number of WOM (volume) today does not necessary imply that there will be higher sales tomorrow; it could be just a manifestation of past sales. Their analysis of data of WOM over TV shows did not show any causality between volume and sales.

Moreover, some studies that have found a significant effect for both volume and valence of online reviews. For example, Moe and Trusov (2011) investigated the effects of social dynamics on the post-purchase behavior of consumers by modeling the effect of both valence and volume of previously posted online reviews. They found that previously posted online reviews had a direct effect on product sales. Dellarocas, Zhang, and Awad (2007) studied the motion picture forecasting models. Building on diffusion theory, they showed that all of online reviews' metrics (i.e. volume, valence, dispersion) significantly contribute to predicting future sales of motion picture. Xie, Zhang, and Zhang (2014) did a panel data analysis on 843 hotels on a hotel review website. They showed that the volume and valence of online reviews are

positively associated with the future performance of hotels. Floyd et al. (2014) did a meta-analysis on online reviews to see how they affect retail sales elasticity. They had 26 papers in their final analysis. They found that both volume and valence of online reviews were helping sales performance in the retail industry.

Finally, many studies in the literature showed that the effect of online reviews valence and volume is contingent on other variables. For example, Cui, Lui, and Guo (2012) studied the effect of online review on new product sales on Amazon. They showed that the effects of online review valence and volume on new product sales were dependent on different product categories. Based on the result of their investigation, the valence of online reviews influenced new product sales for search products (in this study: consumer electronics) and volume of online reviews was related to sales of experience new products (in this study: video games). Furthermore, they contributed to the product life cycle theory and showed that the volume of online reviews was important right after the introduction stage. However, this effect would decrease later in the life cycle of the products.

Similarly, Zhao et al. (2013) built their model on the "framework of consumer learning of product quality based on past usage experience" (p. 154). They analyzed a panel data set of 1,919 book purchases by 243 consumers. They showed that consumers learned more from online reviews compared with using their own previous experience. Average ratings of online reviews (valence) and the number of online reviews (volume) were positively associated with consumer choices. Although an increase in the number of online reviews associated with higher returns and bigger market share for firms but this effect was diminishing; i.e., "increasing the number of reviews from 0 to 10 had a much greater profit impact than increasing the number of online

reviews from 10 to 100." (P. 165), and finally, yet importantly they showed that fake reviews increase consumers' uncertainty.

Additionally, Blal and Sturman (2014) did an interesting study using online reviews data for 319 hotels in London on Tripadvisor.com. Specifically, they looked at the effect of valence and volume of online reviews on the sales performance of hotels (RevPAR: Revenue per Available Room). They examined at the overall sales, not just online sales. In addition, they looked at the moderating role of product type (in this study it is industry segments) on this relationship. Based on the results, valence of online reviews had a positive impact on sales performance for all segments (i.e. economy, midscale, upper midscale, upscale, upper upscale, and luxury) however volume of online reviews was only important for economy, midscale, and upper midscale hotels, and increase in the number of online reviews even had a negative effect on higher-end hotels. They explained this results by pointing out that a sense of scarcity and exclusivity is associated with luxurious products (Catrett and Lynn 1999), so consumers who shopped for hotel rooms in luxurious properties looked for higher ratings (more positive valence) and not so much for volume.

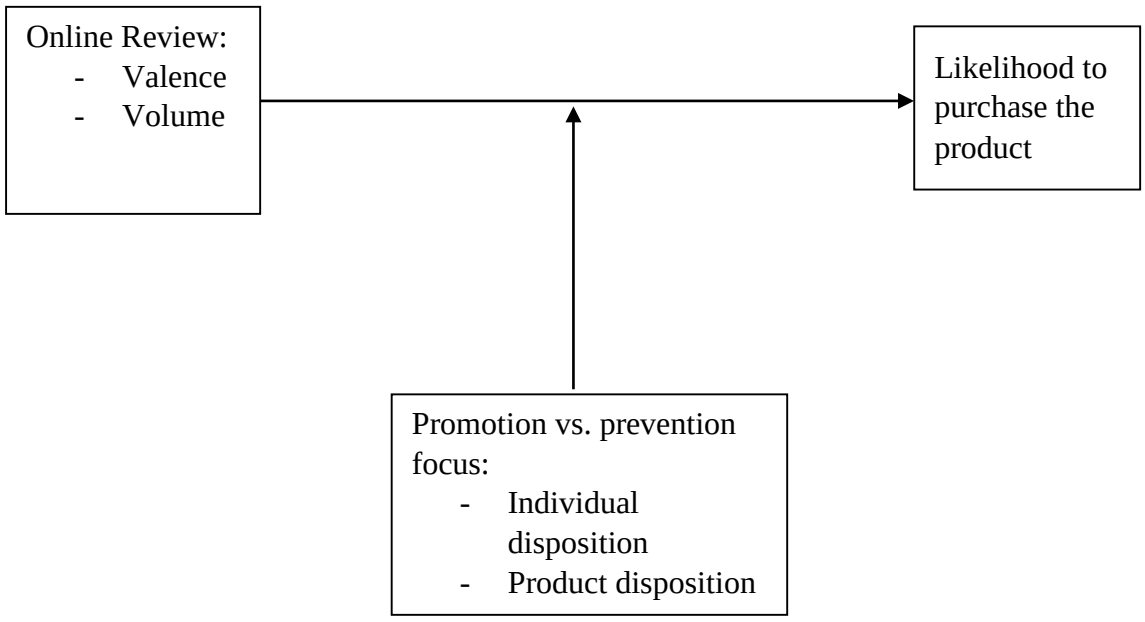
Current research is also an attempt to explain the above-mentioned inconsistency in the literature. This research argues that regulatory focus theory can explain some part of the inconsistent effects of online review volume and valence on sales and purchase intention. Regulatory focus theory suggests that people adapt approach and avoidance strategies in their decision-making processes, depending on their related motivational principles (Crowe and Higgins 1997; Higgins 2012). According to this theory, people can be categorized based on what motivates them towards their desired end-states into two main categories: promotion-oriented and prevention-oriented (also known as promotion focus and prevention focus). This research

postulates that the effect of online reviews volume and valence is contingent on regulatory focus orientation of consumers and products.

This section provided an overview of online review volume and valence literature. Next section will explain the conceptual framework and the development of hypotheses.

Proposed Conceptual Framework and Research Hypotheses

FIGURE 1- CONCEPTUAL MODEL



Online Review's Valence and Volume, and Likelihood to Purchase the Product

Previous empirical studies suggest that online reviews' valence and volume affect the likelihood of purchasing the products and influence sales (Floyd et al 2014). Positive online reviews will encourage potential consumers to purchase the product, because they communicate higher quality (Dellarocas, Zhang and Awad 2007), and shape consumers' attitude towards the product (Duan, Gu and Whinston 2008 a, b).

In this study, by building on signaling theory (Zhao 2000; Connelly et al 2011), it is argued that valence of online reviews should be positively associated with likelihood of purchasing the product. Essentially, positive online reviews are considered a signal of higher quality. A myriad of studies has investigated the relationship between perceived quality and purchase intentions, concluding that higher perceived quality positively influences deal value and purchase intentions.

Previous empirical studies in the entertainment industry (Movies, Music, Video Games, Books) have shown that higher number of online reviews will increase awareness among other potential consumers (Dellarocas, Zhang and Awad 2007; Duan, Gu and Whinston 2008). Higher number of online reviews increase the correctness and reliability of the information conveyed (Salganik and Watts 2008; Mudambi and Schuff 2010; Zhu and Zhang 2010). In addition, the volume of online reviews could be considered as a proxy of sales (Dellarocas, Zhang, and Awad 2007) and popularity.

In this study it is argued that the positive relationship between valence and purchase likelihood is more pronounced when the valence approaches the two extremes of its spectrum, and it dissipates when the valence ratings gravitate toward the middle. A highly positive online review rating is a clear indication of the positive experience of the overwhelming majority of people who have purchased the product and shared their experience. Therefore, when the valence is high, consumers are less likely to doubt the quality of the product and more likely to purchase the product. The opposite is true for products that have a highly negative online review rating, as it would clearly signal a major flaw in the product or the offering that has resulted in a unanimous dissatisfaction among previous buyers. It is posited that when average product ratings are in the middle ranges, they won't have a clear positive or negative influence on consumers' purchase intention. An average rating for a given product would indicate that some people loved the product and some hated it. So it is not a clear indication of either a bad or a good product offering. Therefore, an average rating would warrant the further examination of other available information, such as online review volume and the content of available reviews, and it will not directly influence consumers' purchase intentions.

Based on the above arguments, I postulate that the influence of online review volume on purchase intention is not linear either. When the valence approaches its low or high extremes, there is sufficient information that overwhelming majority of people who purchased the product were either satisfied or dissatisfied with their decision. Therefore, consumers will be more likely to perceive the valence average ratings as a consistent and reliable source of information, and less likely to consider the influence of volume in judging the reliability of the information. When valence is medium, however, volume becomes a valuable source of information. Higher levels of volume, would indicate that more people with potentially more diverse tastes and expectations have purchased the product. Therefore, when the volume is high, it would be considered normal for the valence to gravitate toward the middle. A low level of volume when the valence is medium, on the other hand, would indicate a high degree of purchase risk, as it would suggest that only a few people have purchased the product and was no agreement about the quality of the offering among those people.

H1: Valence has a curvilinear effect on purchase likelihood such that valence effect is stronger in the low and high valence range than in the medium valence range.

H2: Volume will have a significant positive effect on purchase likelihood under moderate and high valence, and it will have no effect under low valence.

Moderating Role of Regulatory Orientation of Consumers and Products

Promotion Focus and Prevention Focus. Crowe and Higgins (1997) studied how consumers with different foci process information and made decisions. Promotion and prevention orientations require different search strategies (Pham and Chang 2010). According to Crowe and Higgins' study (1997), people with promotion orientation seek advancement, growth, aspiration, and achievement. They want to make progress towards their desired end-state and

seize the opportunities. In addition, they are more persuaded by positive outcome (Aaker and Lee 2001). However, people with prevention orientation look for security, safety. In their decision-making processes, they try to minimize risks and avoid losses.

Individual Disposition of Regulatory Focus. As it was discussed earlier, regulatory focus theory implies that consumers can be categorized based on their motivation and the strategies that they adapt to reach their goals. These two categories are promotion focus and prevention focus orientation. These two modes of self-regulation are associated with distinct characteristics: a promotion-focus orientation in consumers is related to advancement, eagerness, risk-taking, status, and uniqueness. In contrast, a prevention-focus orientation is related to vigilance and avoiding mistakes.

Pham and Chang (2010) showed that different regulatory focus orientations affected the strategies that consumers adapt to search for information about various alternatives. It also affected how consumers form their consideration sets in their decision-making process. Higher perceived risk would affect prevention-focused consumers more than promotion-focused consumers (Higgins 2012). Therefore, it is postulated that the positive effect of online review volume is more pronounced for prevention-focused consumers than for promotion-focused consumers. Since prevention-focused people want to minimize the risk in their decision-making process and tend to rely on the fact that so many other consumers have already bought the product. This is also consistent with bandwagon reasoning that shows previous consumers' high demand implies value (Worchel, Lee, and Adewole 1975; Van Herpen, Pieters, and Zeelenberg 2005). On the other hand, as the need for uniqueness is more prevalent among promotion-focused consumers the number of online reviews is not as important as the valence of online reviews. Promotion-focused consumers try to avoid bandwagon behavior. Therefore, the valence

of online reviews will have a stronger effect on promotion-focused consumers, since they look for uniqueness and status. Based on above discussion it is hypothesized that:

H3a: The positive effect of online review valence on likelihood to purchase will be more pronounced for promotion-focused consumers than for prevention-focused consumers.

H3b: The positive effect of online review volume on likelihood to purchase will be more pronounced for prevention-focused consumers than for promotion-focused consumers.

Product Disposition of Regulatory Focus. Previous empirical studies have shown that products can also be classified into promotion-focused and prevention-focused products (Mourali, Bockenholt and Laroche 2007; Ku, Kuo and Kuo 2012). Mourali, Bockenholt and Laroche (2007) showed that when consumers were shopping products with a promotion orientation, they mainly looked for positive outcomes. However, when they were shopping for a product with prevention orientation, they tried to minimize the negative outcomes and avoid any types of uncertainties associated with it. Hence, regardless of consumers' typical regulatory focus, the purchase context regarding product type can temporarily shift consumers' motivational focus and approach, which subsequently influence their response to review information. Following this line of thinking and applying the same arguments for hypotheses 4a and b, it is hypothesized that:

H4a: The positive effect of online review valence on likelihood to purchase will be more pronounced for promotion-focused products than for prevention-focused products.

H4b: The positive effect of online review volume on likelihood to purchase will be more pronounced for prevention-focused products than for promotion-focused prodcuts.

Study 1

Study 1 was conducted to test H1 and H2 through a series of choice tasks. Participants were hired from Amazon Mechanical Turk (MTURK) for monetary compensation and were asked to take a web-based survey. There is numerous empirical evidence in the literature that shows the results from MUTRK are as reliable as results from consumer panels (Paolacci, Chandler, and Ipeirotis 2010; Horton, Rand, and Zeckhauser 2011; Buhrmester, Kwang, and Gosling 2011).

Study 1 Pretest

The pretest was conducted to determine the appropriate levels of volume and valence of online reviews. In the pretest, 56 participants (mean age= 31, 55% female) were hired from MTURK for monetary compensation. Participants were asked to imagine that they are shopping online for six different product categories: digital cameras, USB flash drive, music albums, hotel rooms, vitamins and dietary supplements, and shoes. Then the participants were asked to indicate that for each of the product categories, what minimum star rating does the product need to have for them to consider it to be a good product? what minimum star rating does the product need to have for them to consider it to be an acceptable product? below what star ratings would make them to consider the product as a bad product? what star ratings would make them to consider the product as a mediocre product? (9-item scale, 1-star, 1.5-star, 2-star…, 5-star)

Moreover, participants were asked to indicate that for them to consider a given product from each of the six product categories to have a lot of consumer reviews, how many reviews does it need to have? (7-item scale: less than 10 reviews, 11-50 reviews, 50-100 reviews,100-200 reviews, 200-500 reviews, 500-1000 reviews, and above 1000 reviews), and how many online reviews would make them feel like the product from each of the six product categories to have

only a small number of reviews? (7-item scale: less than 10 reviews, 11-50 reviews, 50-100 reviews,100-200 reviews, 200-500 reviews, 500-1000 reviews, and above 1000 reviews). In addition, participants were asked to indicate that for each of the six product categories, how likely is it that they will search for reviews before making a purchase decision? (11-item scale, 0=Never, 10=Always).

Among the six different product categories, "Digital Camera" turned out to be the one that consumers most search online for (Mean $_{\text{Search-Camera}}$= 9.52, Mean $_{\text{Search-USB}}$= 7.83, Mean $_{\text{Search-Music}}$=6.1, Mean $_{\text{Search-Hotel}}$= 9.49, Mean $_{\text{Search-Vitamin}}$= 7.56, Mean $_{\text{Search-Shoes}}$= 7.4).

Based on the results of the pretest, three different levels of positive, medium, and negative were selected for online review valence. According to the results, for digital cameras, the minimum stars that is needed to consider the product to be good is around 4 stars (Mean $_{\text{high-camera}}$= 6.61, Median $_{\text{high-camera}}$= 7), the minimum stars that is needed to consider the product to be mediocre is around 3.5 (Mean $_{\text{medium-camera}}$= 5.87, Median $_{\text{medium-camera}}$= 6), and the average star of 2.5 and below made the participants to consider the product to be a bad product (Mean $_{\text{low-camera}}$= 4.41, Median $_{\text{low-camera}}$= 4).

Moreover, two different levels were selected for online review volume (high and low). According to the results, for digital cameras, 200 and above available online reviews indicates that the product has a high number of online reviews (Mean $_{\text{high-volume-camera}}$= 4.34, Median $_{\text{high-volume-camera}}$= 4). Additionally, 11 to 50 available online reviews indicate that the product has a low number of online reviews (Mean $_{\text{low-volume-camera}}$= 2.14, Median $_{\text{low-volume-camera}}$= 2). (See Appendix 2 for detailed presentation of the designed pretest)

Main Study Design

The study used a 2 (Volume: high/ low) * 3 (Valence: high/medium/low) within-subject experimental design. One hundred twenty-one workers (mean age= 35.5, 43% female) were hired from MTURK for monetary compensation. In the introduction page, participants were briefed about the study and were asked how often they shop online. Participants were then asked to imagine that they are shopping for digital cameras online, and were told that the e-retailers' website offers information on online reviews' volume and valence (on a 1-5 star rating system). They were asked to choose their desired option among different pairs of digital cameras and indicate their purchase intention for the chosen camera.

On subsequent screens, participants were presented with twelve different choice pairs, each presenting a different combination of online review volume and valence. For each option in a choice pair, the information on average rating and the number of online reviews was presented. To design the 12 choice tasks, I created three blocks of four paired choice tasks each. Each block represented a specific range of valence (High, Medium, and Low), and three variations were used to disguise the valence manipulation in each block (High: 4.1, 4.3, and 4.5-Medium: 3.5, 3.7, and 3.9-Low: 2.1, 2.3, and 2.5). For example, the four choice tasks in the "High" block will feature products all with high valence, but the options in each task may take on the random value of 4.1, 4.3, or 4.5. Within a block, two different levels of online review volume were used (High and Low) and for each level, three variations were used to disguise the volume manipulation (High: 248, 316, and 420-Low: 3, 5, and 7). In three of the four choice tasks in each block, one option within the pair would be high in volume and lower in valence (but still within the same block range of high, medium or low), whereas the other one would be lower in volume and higher in valence (again in the same block range). These represent the trade-off tasks. In addition, a decoy choice task was included in each block to disguise the purpose of the choice

tasks and as an attention-check measure. In the decoy choice task, no trade-off was involved, and one option was superior to the other on both volume and valence. (See Appendix 1 for detailed presentation of the designed experiment)

The 12 choice tasks were presented to the respondents in randomized orders. After seeing the options in each pair, respondents were asked to choose which option in the pair they would select and report their purchase intention for the chosen option.

Finally, respondents answered attention check and demographic questions and were thanked for their participation.

Measures

Independent variables were different levels of volume and valence. Dependent variables are percentage of trade-off (it was calculated as the percentage of the number of choices that a trade-off of high volume over valence was involved to all the other choices that specific individual had made), and purchase intention (If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0=Extremely unlikely, 10= Extremely likely). Following previous empirical research, a one-item scale is used to measure purchase intention (Bickart and Schindler 2001; Garbarino and Strahilevitz 2004; Chu, Choi, and Song 2005). Moreover, age and gender of the participants were controlled. (See appendix 1)

Data Analysis and Results

The key outcome of interest is the extent of trade-off of valence for higher volume. If H1 holds such that volume have a parallel positive main effect on purchase likelihood at the medium range but plays a secondary role in assisting valence effect at the low and high range, we should see more tradeoff at the mid-range than at the low- and high-valence ranges. I calculated trade-

off as the percentage of choices that involved a trade-off of high volume over valence. This was analyzed at both the sample level and the individual level.

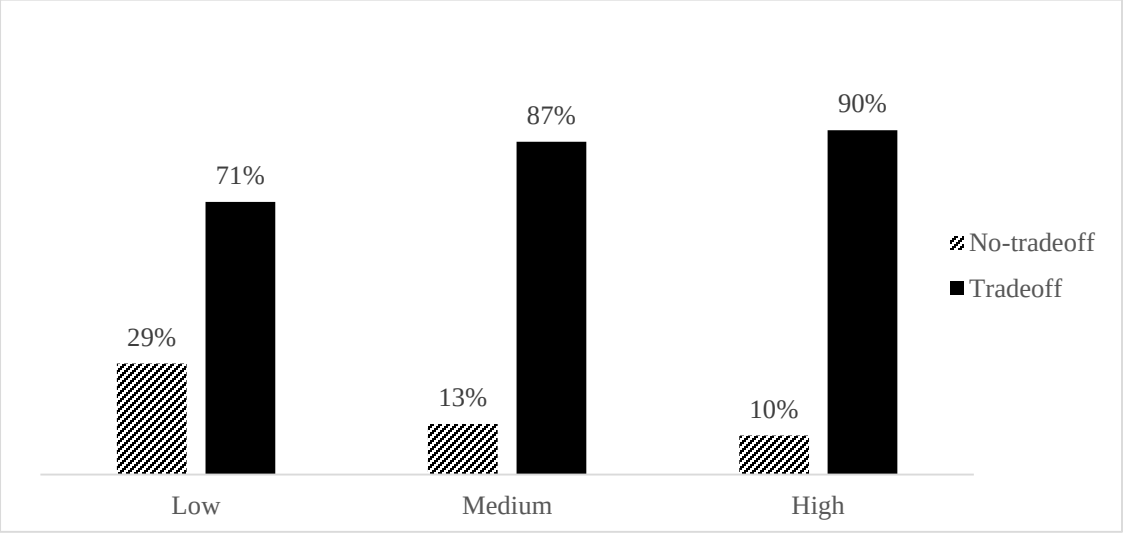
Tradeoff Analysis[1]. I first examined consumers' choices in the tradeoff tasks to examine when volume can play an important role (H2). I did so at both the overall sample level as well at the individual level. Table 2 presents the number of tradeoff vs. no tradeoff decisions at different levels of valence across the entire sample, and Figure 2 visualized the tradeoff share in each condition. Out of a total of 1089 non-decoy choice tasks performed, 899 (83%) involved the option with the higher volume (but lower valence) being chosen. A chi-square test showed that the occurrence of tradeoff was significantly related to the review valence level ($\chi^2(35) = 961.36$, $p < .05$). Specifically, for choice tasks involving lower valence levels, the extent of tradeoff was significantly lower at 71% (258 out of 363), compared with 86.78% (315 out of 363) for the medium valence levels and 89.81% (37/363) for the high valence levels. This provides support for H2, which suggests that volume plays an important role only at medium and high valence and not at low levels of valence.

TABLE 2- STUDY 1, OVERALL SAMPLE ANALYSIS

	Valence			
	Low	Medium	High	Total
No-Tradeoff (Chosen higher valence and lower volume option)	105	48	37	190
Tradeoff (Chosen lower valence and higher volume option)	258	315	326	899
Total	363	363	363	1089

[1] As the results here indicate, people do tradeoff valence for higher volume reviews, and this tradeoff obviously differed depending on the valence range. The subtlety of this tradeoff would have been captured well by an indifference curve to indicate the degree of substitution between the two review features. Unfortunately, in the current experiment, I limited the tradeoff to only small differences in valence within the same block. Hence I do not have sufficient data to create the indifference curve. This is a worthwhile area to explore in future research.

FIGURE 2- STUDY 1, PERCENTAGE OF TRADEOFFS AT SAMPLE LEVEL



A mixed-effects logit model was used to analyze trade-off choices at the individual by block level. The dependent variable is the percentage of trade-off (0 to 100%) for an individual in a single valence block, and the key independent variables were two valence dummies: Valence.High that equals 1 for the high valence block and 0=otherwise, and Valence.Low that similarly indicates the low valence block. Medium valence therefore functioned as the baseline. I control for age and gender, and further add a random individual effect to the model to capture individual heterogeneity not reflected by age and gender and to allow choice outcomes within the same person to correlate with each other.

The results from the analysis is presented in Table 3. The adjusted pseudo-R^2 for the model is .702, suggesting a reasonably good fit. Results showed a significant negative effect of the low-valence dummy ($\beta_{Valence\text{-}Low\ Dummy}$= - 2.13, p <.0001), supporting the lower importance of volume under low valence as hypothesized in H2. Given the logit specification, this means that the odds of trading off valence for volume under low valence was 88% (1-exp (-2.13)) less than the odds under medium valence. The Val.High dummy had a marginally significant positive effect ($\beta_{Valence\text{-}High\ Dummy}$= .62, p =.06), suggesting that the odds of choosing higher volume over

valence in the high valence condition is 1.85 times (or 85% more than) the odds in the medium condition. For the two control variables, "age" was a significant predictor of the tradeoff likelihood (β_{age}= -0.073, p =.03), indicating that older respondents are less likely to tradeoff valence for volume. Gender did not have a significant effect (β_{gender}= .67, p =.41).

TABLE 3- STUDY 1, MIXED-EFFECT LOGIT MODEL RESULTS

	Model Estimate
Intercept	6.37*** (1.86)
Valence.High	.62* (.34)
Valence.Low	-2.13*** (.31)
Gender	0.67 (.81)
Age	-0.07* (.03)
Model Fit	Adjusted Pseudo R^2= .702

Note: *p<.05, **p<.01, ***p<.0001

Purchase Intention Analysis. I also conducted an analysis on the respondents' purchase intention ratings to test H1 and to further confirm the findings from the tradeoff analyses. A mixed-effect model was estimated using purchase intention as the dependent variable and the numeric valence and volume numbers for the corresponding product option as the independent variables. To capture the curvilinear effect of valence hypothesized in H1, both the first-order and quadratic valence terms were included in the model. The volume numbers were log-transformed to reflect the diminishing effect of volume on purchase intention as volume becomes large and to make the scale of volume and valence more similar to each other. Again, age and gender were included as control variables. Similar to the individual-level analysis on tradeoff choices, I include an individual random effect in the model to capture individual heterogeneity.

The model estimates are presented in Table 4. In order to assess the fit of this 2-level model, Nakagawa and Schielzeth (2013) approach was followed. The marginal R^2 for this model is equal to .47. Marginal R^2 describes the proportion of the variance in the model that is explained by fixed factors. The conditional R^2 for this model is equal to .70. Conditional R^2 indicates the variance that is captured by both fixed and random factors in the model. Supporting H1, the quadratic valence term had a significant positive effect ($\beta_{Valence^2} = .43, p < .0001$) on purchase intention, suggesting that the valence effect was higher in the low and high ranges than in the medium range.

The results also showed a significant positive main effect of volume qualified by a significant positive interaction between valence and volume. To help interpret the interaction, I conducted spotlight analysis as suggested by Spiller et al. (2013) and derived the simple slope for volume at the lowest (2.1), medium (3.7), and highest (4.5) valence levels used in the study. At the low valence level, volume did not have a significant effect on purchase intention ($\beta_{low\text{-}Valence\text{-}Volume} = .07, p = .14$). In contrast, the effect of volume was significant and positive under both medium ($\beta_{Medium\text{-}Valence\text{-}Volume} = .2, p < .0001$) and high valence ($\beta_{High\text{-}Valence\text{-}Volume} = .27, p < .0001$)). This pattern of results confirms the findings from the tradeoff analysis and provides further support for H2.

TABLE 4- STUDY 1, RESULTS OF HIERARCHICAL LINEAR MODEL

	Overall Model	**Spotlight Analysis- High Level of Valence**	**Spotlight Analysis- Low Level of Valence**	**Spotlight Analysis- Medium Level of Valence**
intercept	5.76*** (.59)	9*** (.59)	2.56*** (.06)	6.54*** (.5)
Valence	2.46*** (.06)	3.41*** (.23)	2.46*** (.06)	2.72*** (.1)
Volume	.18*** (.03)	.27*** (.06)	.07 (.05)	.20*** (.04)
Valence^2	.43*** (.08)	.43*** (.08)	.43*** (.08)	.43*** (.08)
Age	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)
Gender	.4 (.27)	.4 (.27)	.4 (.27)	.4 (.27)
Valence *Volume	.08* (.03)	---	---	---
Overall Model fit	Marginal R^2= .47 Conditional R^2= .70			

Note: *p<.05, **p<.01, ***p<.0001

In sum, the results of Study 1 show that the effects of both valence and volume are contingent on the valence range. While valence has a stronger effect in low and high valence ranges, volume was more important only when valence reached at least the medium level. Overall both H1 and H2 are supported.

Study 2

Study 2 was conducted to test hypotheses 3 (a) and (b) through a series of choice tasks. In this study, the moderating role of individual disposition of regulatory focus on "online review valence/volume-likelihood to purchase the product" relationship was examined. This study was designed to investigate if consumers with different regulatory focus would behave differently in choosing volume versus valence and vice versa. Online review volume and valence, and regulatory orientation of participants are independent variables. Likelihood to purchase the product is the dependent variable.

Participants were hired from MTURK for monetary compensation and were asked to take a web-based survey.

Main Study Design

Same as study 1, study 2 used a 2 (Volume: high/ low) * 3 (Valence: high/medium/low) within-subject experimental design. One hundred twenty-six workers (mean age= 36.9, 48% female) were hired from MTURK for monetary compensation. In the introduction page, participants were briefed about the study and were asked how often they shop online. Then participants were exposed to the regulatory focus scale (Lockwood, Jordon, and Kunda 2002) questions. Participants were then asked to imagine that they are shopping for digital cameras online, and were told that the e-retailers' website offers information on online reviews' volume and valence (on a 1-5 star rating system). They were asked to choose their desired option among different pairs of digital cameras and indicate their purchase intention for the chosen camera.

On subsequent screens, participants were presented with twelve different choice pairs, each presenting a different combination of online review volume and valence. For each option in a choice pair, the information on average rating and the number of online reviews was presented.

To design the 12 choice tasks, I created three blocks of four paired choice tasks each. Each block represented a specific range of valence (High, Medium, and Low), and three variations were used to disguise the valence manipulation in each block (High: 4.1, 4.3, and 4.5-Medium: 3.5, 3.7, and 3.9-Low: 2.1, 2.3, and 2.5). For example, the four choice tasks in the "High" block will feature products all with positive valence, but the options in each task may take on the random value of 4.1, 4.3, or 4.5. Within a block, two different levels of online review volume were used (High and Low) and for each level, three variations were used to disguise the volume manipulation (High: 248, 316, and 420-Low: 3, 5, and 7). In three of the four choice tasks in each block, one option within the pair would be high in volume and lower in valence (but still within the same block range of high, medium or low), whereas the other one would be lower in volume and higher in valence (again in the same block range). These represent the trade-off tasks. In addition, a decoy choice task was included in each block to disguise the purpose of the choice tasks and as an attention-check measure. In the decoy choice task, no trade-off was involved, and one option was superior to the other on both volume and valence. (See Appendix 1 for detailed presentation of the designed experiment)

The 12 choice tasks were presented to the respondents in randomized orders. After seeing the options in each pair, respondents were asked to choose which option in the pair they would select and report their purchase intention for the chosen option.

Finally, respondents answered attention check and demographic questions and were thanked for their participation.

Measures

Independent variables were different levels of volume and valence. Regulatory focus scale was adapted from previous research (Lockwood, Jordon, and Kunda 2002). This scale has

14 items, half of which measure promotion focus and the other half of which measure prevention focus. The average of responses for each seven-item was calculated. Following Lockwood, Jordon, and Kunda (2002), a measure of regulatory focus was created by subtracting the prevention focus score from the promotion focus score. That is, high scores reflected relative stronger promotion focus than prevention focus.

Dependent variables were percentage of trade-off (it was calculated as the percentage of the number of choices that a trade-off of high volume over valence was involved to all the other choices that specific individual had made), and purchase intention (If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0=Extremely unlikely, 10= Extremely likely). Following previous empirical research, a one-item scale is used to measure purchase intention (Bickart and Schindler 2001; Garbarino and Strahilevitz 2004; Chu, Choi, and Song 2005). Moreover, age and gender of the participants were controlled. (See appendix 1)

Data Analysis and Results

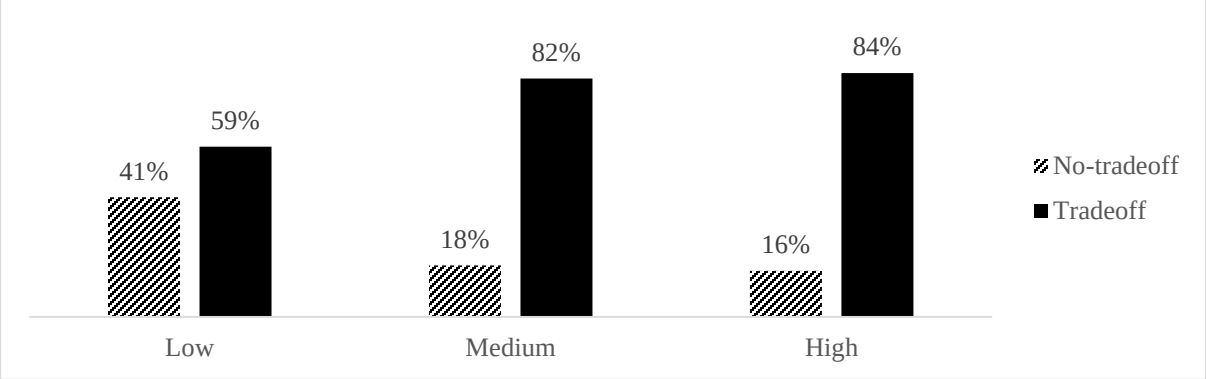
In this study, the key outcome of interest is to see that participants with promotion orientation do less tradeoffs compared to consumers with prevention focus. In other words, if H3 (a) and (b) hold, the volume of online reviews and regulatory orientation of participants must interact in a way that for prevention focus participants the positive effect of higher number of online reviews on their purchase intention is stronger compared to that of participant with promotion focus. Moreover, we should see that the valence of online reviews and regulatory focus orientation of participants interact in a way that for promotion focus participants the positive effect of higher levels of online review valence on their purchase intention is stronger compared to that of prevention focus participants.

Tradeoff Analysis. Replicating the result of study 1, I first examined consumers' choices in the tradeoff tasks to examine when volume can play an important role (H2). Table 5 presents the number of tradeoff vs. no tradeoff decisions at different levels of valence across the entire sample, and Figure 3 visualized the tradeoff share in each condition. Out of a total of 1134 non-decoy choice tasks performed, 851 (75%) involved the option with the higher volume (but lower valence) being chosen. A chi-square test showed that the occurrence of tradeoff was significantly related to the review valence level ($\chi 2(40) = 806.43, p < .001$). Specifically, for choice tasks involving lower valence levels, the extent of tradeoff was significantly lower at 59% (256 out of 378), compared with 82% (67 out of 378) for the medium valence levels and 84% (60 out of 378) for the high valence levels. This again provides support for H2, which suggests that volume plays an important role only at medium and high valence and not at low levels of valence.

TABLE 5- STUDY 2, OVERALL SAMPLE ANALYSIS

	Valence			
	Low	Medium	High	Total
No-Tradeoff (Chosen higher valence and lower volume option)	156	67	60	283
Tradeoff (Chosen lower valence and higher volume option)	222	311	318	851
Total	378	378	378	1134

FIGURE3- STUDY 2, PERCENTAGE OF TRADEOFFS



A mixed-effects logit model was used to analyze the interaction between participant's regulatory focus and their trade-off choices at the individual by block level. The dependent variable is the percentage of trade-off (0 to 100%) for an individual in a single valence block, and the key independent variables were two valence dummies: Valence.High that equals 1 for the high valence block and 0=otherwise, and Valence.Low that similarly indicates the low valence block. Medium valence therefore functioned as the baseline. As it was discussed earlier, regulatory focus scale is adapted from (Lockwood, Jordan, and Kunda 2002) and is another main independent variable of interest. The reliability of the regulatory focus scale is calculated which meets the satisfactory threshold (Cronbach's alpha= .83). In order to investigate the interaction correctly, the variable that is capturing regulatory focus is mean-centered. I control for age and gender, and further add a random individual effect to the model to capture individual heterogeneity not reflected by age and gender and to allow choice outcomes within the same person to correlate with each other.

The results from the analysis is presented in Table 6. The adjusted pseudo-R^2 for the model is .57, suggesting a reasonably good fit. Results showed a significant negative effect of the low-valence dummy ($\beta_{Valence\text{-}Low\text{-}Dummy}$= - 1.96, p <.0001), again supporting the lower importance of volume under low valence as hypothesized in H2. Given the logit specification, this means that the odds of trading off valence for volume under low valence was 86% (1-exp (-1.96)) less than the odds under medium valence. This fitted model implies that in low valence condition, a unit increase in RF scale yields an 86% decrease (1-Exp (-1.96)) in odds of choosing the option with higher volume. In line with H3 of this study, the results show that for promotion-focused consumers (the larger RF is) the odds of doing a tradeoff decreases (β_{RF}= -.34, SE= .12, p<.006, odds ratio=exp (-.34) = .71). This means that promotion-focused individuals do not care about

the higher number of online reviews as much. The Val.High dummy did not have a significant effect ($\beta_{Valence\text{-}High\ dummy}$ = .18, p =.47). None of the two control variables, age and gender, had a significant effect (β_{age}= -.0008, p=.98; β_{gender}= -.58, p= .13).

TABLE 6- STUDY 2, MIXED-EFFECT LOGIT MODEL RESULTS

	Model Estimate
Intercept	3.42*** (.88)
RF	-.34** (.12)
Val.Low	-1.96*** (.23)
Val.High	.18 (.25)
Gender	-.58 (.39)
Age	-.0008 (.01)
RF * Val.Low	.34** (.003)
RF * Val.High	-.007 (.13)
Model Fit	Adjusted Pseudo R^2= .57

Note: *p<.05, **p<.01, ***p<.0001

Purchase Intention Analysis. In this study, it is hypothesized that for a promotion-focused consumer, the positive effect of online reviews' valence on likelihood to purchase the product will be more pronounced. Moreover, for a prevention-focused consumer, the positive effect of online reviews' volume on likelihood to purchase the product will be more pronounced. In order to test the hypothesis, a mixed-effect model is used. The dependent variable in this analysis is purchase intention. Independent variables are the interaction term of valence and volume, the interaction term of valence and regulatory focus of individuals, the interaction term of volume and regulatory focus of individual. Moreover, to capture the curvilinear effect of valence hypothesized in H1, both the first-order and quadratic valence terms were included in the model.

The volume numbers were log-transformed to reflect the diminishing effect of volume on purchase intention as volume becomes large and to make the scale of volume and valence more similar to each other. Age and gender were included as control variables. Finally, an individual random effect term is added to the model to capture individual heterogeneity.

The model estimates are presented in Table 7. In order to assess the fit of this 2-level model, Nakagawa and Schielzeth (2013) approach was followed. The fit of the general model is explained by marginal R^2= .47, and conditional R^2= .73. Marginal R^2 shows the variation in the model that is explained by fixed factors, however, the conditional R^2 shows the variance of the model that is explained by both random and fixed factors. As it is shown here, a big portion of the variance in the model is explained by the random factor (variable that is capturing individual-specific error terms). This implies that using a mixed-effect model is a better solution to investigate the hypothesis.

According to the results of the general model, the interaction term between online review volume and valence is positively significant ($\beta_{Valence*Volume}$= *.05, p= .06*). Moreover, the interaction term that is hypothesized to capture the relationship between regulatory focus and online review valence is positively significant in the model ($\beta_{Valence*RF}$= .03, *p*= .06). This supports hypothesis 3 (a), implying that individuals with promotion orientation in life would care more about the valence of online reviews. Additionally, interaction term that is hypothesized to capture the relationship between regulatory focus and online review volume is negatively significant in the model ($\beta_{Volume*RF}$= -.03, *p*= .02). This supports hypothesis 3 (b), implying that individuals with prevention orientation (lower scores in RF scale) in life would care more about the volume of online reviews. For the two control variables, “gender” was a marginally significant predictor of the purchase intention (β_{gender}= 0.53, *p* =.05), indicating that female

participants have higher purchase intention. Age did not have a significant effect (β_{age}= -.01, p =.24).

TABLE 7- STUDY 2, RESULTS OF HIERARCHICAL LINEAR MODEL

	Model Estimate
intercept	5.44*** (.59)
Valence	2.32*** (.05)
Valence^2	.27*** (.08)
Volume	.20*** (.02)
RF	-.07 (.06)
Age	-.01 (.01)
Gender	.53* (.27)
Valence *Volume	.06* (.02)
Valence * RF	.03** (.02)
Volume * RF	-.03** (.01)
Valence *Volume * RF	-.01 (.01)
Model fit	Marginal R2= .47 Conditional R2= .73

Note: *p<.05, **p<.01, ***p<.0001

In sum, the results of Study 2 show that the effect of online review volume and valence on purchase intention is moderated by consumers' regulatory focus. Specifically, for consumers with promotion focus the role of higher valence of online reviews in their decision-making is stronger compared to that of consumers with prevention focus. Additionally, it is shown that for consumers with prevention focus the role of the volume of online reviews in their decision-making is stronger compared to that of consumers with promotion focus. The results of study 2 provides support for hypotheses 3 (a) and (b).

Study 3

Study 2 investigated the interaction between online review characteristics and the individual disposition of regulatory focus. This study extends the previous one by investigating the role of regulatory focus as triggered by the product category under consideration, which was the focus of H4(a) and H4(b).

Pretest

The pretest was conducted to determine the two product categories with different regulatory orientations. In the pretest, 81 participants (mean age= 36.9, 40% female) were hired from MTURK for monetary compensation. Following previous research that has used prevention vs. promotion focused product categories (Mourali, Bockenholt and Laroche 2007; Zhang, Craciun, and Shin 2010; Ku, Kuo and Kuo 2012), respondents were asked to rate eight product categories (Candy and chocolate gifts, mouthwash, sunscreen, perfume, antivirus software, photo-enhancing software, weed killer, and fertilizer) on two 7-point scale anchored at very enhancing/not enhancing, and protecting/not very protecting, adapted from Zhang, Craciun and Shin (2010). (See Appendix 2 for the pretest questionnaire)

To make sure that the participants properly understood the meaning of the measurement items, they were told that “enhancing products are products that increase fun in life; these are things you like to have in order to feel good/happy”, and protecting products are; “products that increase safety in life; these are things you need to have in order to avoid negative consequences.” These descriptions were taken from Zhang, Craciun and Shin (2010). The candy and chocolate gifts category and the sunscreen category received the most different ratings between the two measurement items. A paired t-test was further conducted to ensure that respondents consider Chocolate to be an enhancing (promotion-focused) product compared to

Sunscreen (t= -5.95, df=80, p<.0001), and showed that respondents consider Sunscreen to be a protecting (prevention-focused) product compared to chocolate (t= 24.85, df=80, p<.0001). Therefore, Sunscreen ($Mean_{Protecting}$= 6.38, $Mean_{Enhancing}$= 3.93) was chosen to be the product with prevention orientation and Chocolate ($Mean_{Protecting}$= 1.7, $Mean_{Enhancing}$= 5.58) to be the product with promotion orientation.

Study 3 Data

In lieu of experimental design, I collected Study 3 data from the US Amazon.com website. Amazon.com sells a variety of different products and services and is a great resource for online reviews. It was also the leading e-retailer in the US in 2014 (selling $79.48 billion dollars) (Internet retailer 2015). It has been used in a number of studies on online reviews (Chen, Woo, and Yoon 2004; Chevalier and Mayzlin 2006; Amblee and Bui 2011; Cui, Lui, and Guo 2012; Ludwig et al. 2013). Based on the results from the pretest, the chocolate and sunscreen categories were used as the focal categories of the main study. Using an automated web crawler, information on all products sold by Amazon.com in those two categories was gathered daily for 40 days. This resulted in 234 products in the chocolate category and 154 products in the sunscreen category. For hypothesis testing purposes, I used the information from the first week for the independent and control variables, and I used these variables to predict the sales rank outcome for the respective product at the last week of the data collection time.

Variable Operationalization

The independent variables of interest were online review valence, online review volume, and regulatory orientation of the product (promotion vs. prevention). For online review volume, Chevalier and Mayzlin's (2006) procedure was followed, which used the cumulative number of online reviews (the average of first week). This volume was log-transformed in the analysis to

correct the skewness of the data. For online review valence, the procedure of previous related empirical studies (Clemons, Gao, and Hitt 2006; Dellarocas, Zhang, and Awad 2007; Cui, Lui, and Guo 2012) was followed. The average star ratings that each product has received from consumers was used (again the average of first week). I also included a lagged sales rank variable to control for the initial popularity of the product. The dependent variable, likelihood to purchase, was operationalized as the log-transformed sales rank of each product on Amazon.com at the last week of the data collection period (the average of last week of data collection). Previous studies have shown that the log-transformed sales rank on Amazon.com is a good proxy for actual sales (Chevalier and Mayzlin 2006; Cui, Lui, and Guo 2012). Information on price, discounts, the number of answered questions, availability of Prime shipping, the number of words in the product description, the presence of scarcity appeal, and delayed shipping was collected as control variables in the study.

Hypothesis Testing and Results

To test H3(a) and H3(b), I conducted an ordinary least squares regression using product category, review volume, review valence and their interactions as the main independent variables, and log-transformed sales rank as the dependent variable. I also included several product controls, including information on price, discounts, the number of answered questions, availability of Prime shipping, the number of words in the product description, the presence of scarcity appeal, and delayed shipping. As the log-transformed sales rank, review valence, and volume from different product categories can systematically differ from each other (e.g., due to popularity and general product quality) and hence may not be comparable across the categories, depending on the popularity of that product category, I first standardized these variables within each product category before entering them into the regression.

Table 8 shows the results of the regression analysis. The model explained a significant portion (~86%) of the variance in the dependent variable. It should be noted that as a higher sales rank indicates lower sales, a positive effect of a variable on purchase likelihood would be indicated by a negative coefficient from the model. The results showed a significant negative coefficient of review valence ($\beta_{Valence}$= -.27, p=.001). Also, a significant interaction between valence and product category ($\beta_{Valence*Category}$ = .26, p=.01) (1=prevention focused category, and 0=promotion focused category). Valence had a significant negative effect on sales rank for sunscreen products ($\beta_{Valence,\ Sunscreen}$ = -.27, p=.001), but it did not have a significant effect on sales rank for chocolate products ($\beta_{Valence,\ Chocolate}$ = -.001, p=.91).

There is a significant interaction between volume and valence ($\beta_{Volume*Valence}$= -.25, p=.08) which confirms that the effect of volume is contingent to different levels of valence. Moreover, the results showed that valence improves the sales rank for promotion-focused products ($\beta_{Valence*Category}$= -.26, p=.01) compared to prevention-focused products, consistent with H4(b). However, contradicting H4(a), volume was not more important in the prevention-focused category than in the promotion-focused category, as indicated by the non-significant interaction between review volume and product category ($\beta_{Volume*Category}$= -.005, p=.52). Overall, the results suggest that volume was not more important in the prevention-oriented category (i.e., sunscreens). Among the control variables, price, number of answered question for a product, and discount were not a significant predictor of sales rank. The Prime shipping ($\beta_{Prime\ Shipping}$= -.22, p=.01) and delayed shipping ($\beta_{delayed\ Shipping}$= -.2, p=.03) increased sales, whereas the presence of scarcity messages (e.g., limited inventory) ($\beta_{Scarcity}$= .1, p=.05), the number of word count in a product's description ($\beta_{Word\ Count}$= .001, p=.08), and low popularity/bad sales rank in the first week ($\beta_{Sales\ Rank\ First\ Week}$= .4, p<.0001) decreased sales.

TABLE 8-STUDY 3, ORDINARY LEAST SQUARE REGRESSION RESULTS

	Model Estimate
Intercept	-4*** (.21)
Price	-.00009 (.0005)
Answered Questions	.002 (.002)
Prime	-.22* (.09)
Word Count	.001* (.0007)
Discount	.002 (.007)
Scarcity	.1* (.05)
Delayed Shipping	-.2* (.09)
Sales Rank First Week	.4*** (.01)
Category	.09 (.07)
Valence	-.27** (.08)
Valence^2	.07 (.06)
Volume	.06 (.09)
Volume * Valence	-.25** (.08)
Volume * Category	-.05 (.08)
Valence * Category	.26* (.11)
Valence * Volume * Category	.12 (.09)
Model fit	R^2: .86 F (16, 405) = 161.5, p<.0001

Note: *p<.05, **p<.01, ***p<.0001

Discussion

The importance of studying online reviews as a major factor in consumers' decision-making is well-established in the literature. Moreover, the growth in online retailing and online shopping in recent years requires companies to monitor consumer activities in the online environment with more scrutiny. Although numerous studies in the literature tried to investigate the impact of online reviews, the findings have been inconsistent. Some studies found that the number of available online reviews but not the average rating of reviews impacts consumer purchases (e.g., Chen, Woo, and Yoon 2004; Liu 2006; Duan, Gu, and Washington 2008 a, b; Amblee and Bui 2011), whereas some other studies find the opposite to be true (e.g., Godes and Mayzlin 2004; Sridhar and Srinivasan 2012). Yet several studies showed that both review valence and review volume affect consumers' purchase intention (e.g., Dellarocas, Zhang, and Awad 2007; Moe and Trusov 2011; Floyd et al. 2014; Xie, Zhang, and Zhang 2014). The current research attempts to explain some of these inconsistencies in the literature by investigating the interaction between valence and volume and by introducing the moderating effect of regulatory focus both as an individual disposition and as a contextual difference triggered by the product involved. The findings of all three studies show a significant interaction between volume and valence of online reviews (i.e. volume effect is contingent on valence). Specifically, the results of study 1 showed that the effects of both valence and volume are contingent on the valence range. While valence has a stronger effect in low and high valence ranges, volume was more important only when valence reached at least the medium level. Study 2 demonstrated that regulatory focus is indeed an important variable in consumers' purchase decision-making. According to the results of study 2, the effect of online review volume and valence on purchase intention is moderated by consumers' regulatory focus. Specifically, for consumers with

promotion focus the role of higher valence of online reviews in their decision-making is stronger compared to that of consumers with prevention focus. Additionally, it is shown that for consumers with prevention focus the role of the volume of online reviews in their decision-making is stronger compared to that of consumers with promotion focus. Using Amazon.com data study 3 showed that product regulatory orientation also moderates the effect of online review valence on firms' sale. Specifically, it is shown that higher valence of online reviews for product with promotion orientation can help improve their sales rank on Amazon.com.

Based on the results of study 1 and 2, it is argued that regulatory focus is an important boundary variable that needs to be involved in online review research literature. It is suggested that researchers who are trying to investigate the impacts of the number of online reviews and the average rating of online reviews include the regulatory focus measurement in their study designs. So in the subsequent statistical analyses, researchers investigate the effect of regulatory focus as a boundary variable.

In order to answer the question of valence or volume? Which one matters? Current research demonstrated that it depends. To some part, it is contingent to regulatory orientation of both consumers and product category. Consequently, it is argued that regulatory focus is a moderating variable which explains a portion of the inconsistency of the impacts of the number of online reviews and the average rating of online reviews.

Managerial Implications

The importance of online markets and online marketing is well-known to companies. In 2015 holiday shopping season which is from Black Friday until Christmas, consumers spent 56.43 billion USD on online shopping. In 2015 Cyber Monday, consumers set a new record for online shopping; they spent close to 2.3 billion USD in only one day (Statista.com, 2016).

The rise in doing business online requires companies to think about new ways of marketing their product and services, in a way that enables them to skim the online market. The finding of current research can be used as a guideline to companies. The results of study 1 and 2 showed that if generally speaking, the current valence of the item on company's website is highly negative, there is no point in increasing the number of reviews. Unless the firms can offer incentives to satisfied customers to post positive reviews. Then once the valence is in within acceptable/medium range, companies should try to increase the number of online reviews as the results of study 1 has shown that at medium levels of valence, higher volume has a positive effect on purchase intention.

The results of study 2 and 3 of this research demonstrated that regulatory focus is indeed an important factor in consumers' decision-making. These findings can aid managers in multiple ways. Interestingly, in study 2 of current research, it is shown that the individual-disposition of regulatory focus impacts the way they process online review information. Specifically, it was demonstrated that consumers with promotion orientation would pay more attention to the average rating of online reviews; however, consumers with prevention orientation would pay more attention to the number of online reviews. This shows companies that understanding consumers' psychographic variables is very important in the online shopping context. Current research implies that understanding regulatory orientation of companies' target market in the marketplace is imperative. If a prevention orientation is more common in companies' target market, then the company should invest in increasing the number of online reviews. On the other hand, if a promotion orientation is more common in companies' target market, then the company should invest in increasing the average rating of online reviews. This finding also has substantial implications for multinational marketers. As previous research showed that different countries

can be assigned to different regulatory orientations; for example, people in middle-eastern countries are known to be more prevention focused.

Limitations and Future Research

Besides the contributions of current research, there are some limitations that need to be discussed. Furthermore, these limitations call for future research on the topic. First, in study 1 and study 2, only one product category was involved in the study (Digital camera). Involving more different product categories will add reliability to the results of current research. Also, it can offer external validity to current research results. Also, in study 1 and 2 experimental design was used. Experiments might not be the most helpful way of monitoring the actual behavior of participants in the marketplace. Future research could address this problem by collecting field data. Additionally, in the tradeoff tasks in study 1 and 2, consumers were asked to choose very large variations of volume (10 vs. a few hundreds) against very small variations of valence (typically within .4 points apart). This has generated a large percentage of tradeoff choices. People may behave quite differently if the valence values were further apart between the two options. Studying consumers' extent of willingness to tradeoff between volume and valence could be an interesting question to explore in the future, and a utility function and an indifference curve can be constructed to capture the relative effect of valence and volume at all ranges. Moreover, for study 3, only one website (Amazon.Com) was used as the source of data collection. Replicating the study using data from other websites could be done by future researchers. Finally, in study 3, there was no exact measurement for sales, as Amazon.com does not share that kind of information. Instead, Sales Rank was used as a proxy variable. Future research could look into the websites that offer access to the exact sales information.

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Appendices

Appendix 1

Design Study 1

***** Introduction**

You are invited to participate in a research study on consumer behavior. It will take about 10-15 minutes to answer all of the questions. Please be as honest and accurate as you can. There is no physical or psychological risk involved in this study to you. The records of this study will be kept completely private and confidential. Any report of this study will not include any information that will make it possible to identify you as a participant. Your participation in this study is entirely voluntary.

***** Online Shopping Experience**

How often do you shop online?

- at least once a week
- at least once a month
- at least once every couple of months
- at least once every six months
- once a year or less
- I don't shop online

***** Explaining the Task**

Imagine that you are shopping for a Digital Camera. For each camera, the retailer's website shows the number of consumer reviews and the average star ratings using a 5-star system, with 5 being the highest rating and 1 being the lowest rating.

On the next few pages you will be shown pairs of cameras. For each pair, please indicate which one you would be more likely to buy.

***** Choice 1 (Respondents were randomly assigned to one of the following nine options)**

Block 1- Medium Valence Condition 1	
1	<<Pair A>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 3.5 Camera B: Number of Reviews: 3, Average rating: 3.7
2	<<Pair A>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 3.5 Camera B: Number of Reviews: 7, Average rating: 3.7
3	<<Pair A>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 3.5 Camera B: Number of Reviews: 5, Average rating: 3.7
4	<<Pair A>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 316, Average rating: 3.5 Camera B: Number of Reviews: 3, Average rating: 3.7
5	<<Pair A>>

Block 1- Medium Valence Condition 1	
	Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.5 Camera B — Number of Reviews: 7 — Average rating: 3.7
6	<<Pair A>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.5 Camera B — Number of Reviews: 5 — Average rating: 3.7
7	<<Pair A>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 3.5 Camera B — Number of Reviews: 3 — Average rating: 3.7
8	<<Pair A>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 3.5 Camera B — Number of Reviews: 7 — Average rating: 3.7
9	<<Pair A>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 3.5 Camera B — Number of Reviews: 5 — Average rating: 3.7
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely — Extremely Likely	

***** Choice 2 (Respondents were randomly assigned to one of the following nine options)**

Block 2- Medium Valence Condition 2	
1	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.7 Camera B — Number of Reviews: 3 — Average rating: 3.9
2	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.7 Camera B — Number of Reviews: 7 — Average rating: 3.9
3	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.7 Camera B — Number of Reviews: 5 — Average rating: 3.9
4	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.7 Camera B — Number of Reviews: 3 — Average rating: 3.9

Block 2- Medium Valence Condition 2	
5	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.7 Camera B — Number of Reviews: 7 — Average rating: 3.9
6	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.7 Camera B — Number of Reviews: 5 — Average rating: 3.9
7	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 3.7 Camera B — Number of Reviews: 3 — Average rating: 3.9
8	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 3.7 Camera B — Number of Reviews: 7 — Average rating: 3.9
9	<<Pair B>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 3.7 Camera B — Number of Reviews: 5 — Average rating: 3.9
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely — Extremely Likely	

***** Choice 3 (Respondents were randomly assigned to one of the following nine options)**

Block 3- Medium Valence Condition 3	
1	<<Pair C>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.5 Camera B — Number of Reviews: 3 — Average rating: 3.9
2	<<Pair C>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.5 Camera B — Number of Reviews: 7 — Average rating: 3.9
3	<<Pair C>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.5 Camera B — Number of Reviews: 5 — Average rating: 3.9
4	<<Pair C>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 Camera B — Number of Reviews: 3

Block 3- Medium Valence Condition 3		
	Average rating: 3.5	Average rating: 3.9
5	<<Pair C>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.5	 Camera B Number of Reviews: 7 Average rating: 3.9
6	<<Pair C>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.5	 Camera B Number of Reviews: 5 Average rating: 3.9
7	<<Pair C>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.5	 Camera B Number of Reviews: 3 Average rating: 3.9
8	<<Pair C>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.5	 Camera B Number of Reviews: 7 Average rating: 3.9
9	<<Pair C>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.5	 Camera B Number of Reviews: 5 Average rating: 3.9
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 4 (Respondents were randomly assigned to one of the following 27 options)**

Block 4- Medium Valence Condition-Decoy		
1	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	 Camera B Number of Reviews: 420 Average rating: 3.7
2	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	 Camera B Number of Reviews: 420 Average rating: 3.7
3	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.5	 Camera B Number of Reviews: 420 Average rating: 3.7
4	<<Pair D>> Please select the one that you would be more willing to buy. Camera A	 Camera B

Block 4- Medium Valence Condition-Decoy		
	Number of Reviews: 3 Average rating: 3.5	Number of Reviews: 316 Average rating: 3.7
5	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	 Camera B Number of Reviews: 316 Average rating: 3.7
6	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.5	 Camera B Number of Reviews: 316 Average rating: 3.7
7	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	 Camera B Number of Reviews: 248 Average rating: 3.7
8	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	 Camera B Number of Reviews: 248 Average rating: 3.7
9	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.5	 Camera B Number of Reviews: 248 Average rating: 3.7
10	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	 Camera B Number of Reviews: 420 Average rating: 3.9
11	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	 Camera B Number of Reviews: 420 Average rating: 3.9
12	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.5	 Camera B Number of Reviews: 420 Average rating: 3.9
13	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	 Camera B Number of Reviews: 316 Average rating: 3.9
14	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	 Camera B Number of Reviews: 316 Average rating: 3.9
15	<<Pair D>> Please select the one that you would be more willing to buy.	

Block 4- Medium Valence Condition-Decoy		
	Camera A Number of Reviews: 5 Average rating: 3.5	Camera B Number of Reviews: 316 Average rating: 3.9
16	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	 Camera B Number of Reviews: 248 Average rating: 3.9
17	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	 Camera B Number of Reviews: 248 Average rating: 3.9
18	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.5	 Camera B Number of Reviews: 248 Average rating: 3.9
19	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.7	 Camera B Number of Reviews: 420 Average rating: 3.9
20	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.7	 Camera B Number of Reviews: 420 Average rating: 3.9
21	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.7	 Camera B Number of Reviews: 420 Average rating: 3.9
22	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.7	 Camera B Number of Reviews: 316 Average rating: 3.9
23	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.7	 Camera B Number of Reviews: 316 Average rating: 3.9
24	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.7	 Camera B Number of Reviews: 316 Average rating: 3.9
25	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.7	 Camera B Number of Reviews: 248 Average rating: 3.9
26	<<Pair D>>	

Block 4- Medium Valence Condition-Decoy	
	Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 3.7 Camera B — Number of Reviews: 248 — Average rating: 3.9
27	<<Pair D>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 3.7 Camera B — Number of Reviews: 248 — Average rating: 3.9
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely ... Extremely Likely	

***** Choice 5 (Respondents were randomly assigned to one of the following nine options)**

Block 5- High Valence Condition 1	
1	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 4.1 Camera B — Number of Reviews: 3 — Average rating: 4.3
2	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 4.1 Camera B — Number of Reviews: 7 — Average rating: 4.3
3	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 4.1 Camera B — Number of Reviews: 5 — Average rating: 4.3
4	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 4.1 Camera B — Number of Reviews: 3 — Average rating: 4.3
5	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 4.1 Camera B — Number of Reviews: 7 — Average rating: 4.3
6	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 4.1 Camera B — Number of Reviews: 5 — Average rating: 4.3
7	<<Pair E>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 4.1 Camera B — Number of Reviews: 3 — Average rating: 4.3

Block 5- High Valence Condition 1	
8	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 4.1 Camera B: Number of Reviews: 7, Average rating: 4.3
9	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 4.1 Camera B: Number of Reviews: 5, Average rating: 4.3
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely ... Extremely Likely	

***** Choice 6 (Respondents were randomly assigned to one of the following nine options)**

Block 6- High Valence Condition 2	
1	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 4.3 Camera B: Number of Reviews: 3, Average rating: 4.5
2	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 4.3 Camera B: Number of Reviews: 7, Average rating: 4.5
3	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 4.3 Camera B: Number of Reviews: 5, Average rating: 4.5
4	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 316, Average rating: 4.3 Camera B: Number of Reviews: 3, Average rating: 4.5
5	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 316, Average rating: 4.3 Camera B: Number of Reviews: 7, Average rating: 4.5
6	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 316, Average rating: 4.3 Camera B: Number of Reviews: 5, Average rating: 4.5
7	<<Pair F>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248 Camera B: Number of Reviews: 3

Block 6- High Valence Condition 2		
	Average rating: 4.3	Average rating: 4.5
8	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.3	Camera B Number of Reviews: 7 Average rating: 4.5
9	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.3	Camera B Number of Reviews: 5 Average rating: 4.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 7 (Respondents were randomly assigned to one of the following nine options)**

Block 7- High Valence Condition 3		
1	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 4.1	Camera B Number of Reviews: 3 Average rating: 4.5
2	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 4.1	Camera B Number of Reviews: 7 Average rating: 4.5
3	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 4.1	Camera B Number of Reviews: 5 Average rating: 4.5
4	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.1	Camera B Number of Reviews: 3 Average rating: 4.5
5	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.1	Camera B Number of Reviews: 7 Average rating: 4.5
6	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.1	Camera B Number of Reviews: 5 Average rating: 4.5
7	<<Pair G>> Please select the one that you would be more willing to buy. Camera A	Camera B

Block 7- High Valence Condition 3		
	Number of Reviews: 248 Average rating: 4.1	Number of Reviews: 3 Average rating: 4.5
8	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.1	 Camera B Number of Reviews: 7 Average rating: 4.5
9	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.1	 Camera B Number of Reviews: 5 Average rating: 4.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 8 (Respondents were randomly assigned to one of the following 27 options)**

Block 8- High Valence Condition-Decoy		
1	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.1	 Camera B Number of Reviews: 420 Average rating: 4.3
2	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.1	 Camera B Number of Reviews: 420 Average rating: 4.3
3	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.1	 Camera B Number of Reviews: 420 Average rating: 4.3
4	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.1	 Camera B Number of Reviews: 316 Average rating: 4.3
5	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.1	 Camera B Number of Reviews: 316 Average rating: 4.3
6	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.1	 Camera B Number of Reviews: 316 Average rating: 4.3
7	<<Pair H>> Please select the one that you would be more willing to buy.	

Block 8- High Valence Condition-Decoy		
	Camera A Number of Reviews: 3 Average rating: 4.1	Camera B Number of Reviews: 248 Average rating: 4.3
8	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.1	 Camera B Number of Reviews: 248 Average rating: 4.3
9	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.1	 Camera B Number of Reviews: 248 Average rating: 4.3
10	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.3	 Camera B Number of Reviews: 420 Average rating: 4.5
11	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.3	 Camera B Number of Reviews: 420 Average rating: 4.5
12	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.3	 Camera B Number of Reviews: 420 Average rating: 4.5
13	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.3	 Camera B Number of Reviews: 316 Average rating: 4.5
14	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.3	 Camera B Number of Reviews: 316 Average rating: 4.5
15	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.3	 Camera B Number of Reviews: 316 Average rating: 4.5
16	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.3	 Camera B Number of Reviews: 248 Average rating: 4.5
17	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.3	 Camera B Number of Reviews: 248 Average rating: 4.5
18	<<Pair H>>	

Block 8- High Valence Condition-Decoy	
	Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 248 Average rating: 4.3 Average rating: 4.5
19	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 420 Average rating: 4.1 Average rating: 4.5
20	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 420 Average rating: 4.1 Average rating: 4.5
21	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 420 Average rating: 4.1 Average rating: 4.5
22	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 316 Average rating: 4.1 Average rating: 4.5
23	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 316 Average rating: 4.1 Average rating: 4.5
24	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 316 Average rating: 4.1 Average rating: 4.5
25	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 248 Average rating: 4.1 Average rating: 4.5
26	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 248 Average rating: 4.1 Average rating: 4.5
27	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 248 Average rating: 4.1 Average rating: 4.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely	

Block 8- High Valence Condition-Decoy

***** Choice 9 (Respondents were randomly assigned to one of the following nine options)**

Block 9- Low Valence Condition 1	
1	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.5
2	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.5
3	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.5
4	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.5
5	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.5
6	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.5
7	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.5
8	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.5
9	<<Pair I>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10	

Block 9- Low Valence Condition 1	
Extremely Unlikely	Extremely Likely

***** Choice 10 (Respondents were randomly assigned to one of the following nine options)**

Block 10- Low Valence Condition 2	
1	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.3
2	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.3
3	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.3
4	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.3
5	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.3
6	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.3
7	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.3
8	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.3
9	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.3
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above?	

Block 10- Low Valence Condition 2
0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely

***** Choice 11 (Respondents were randomly assigned to one of the following nine options)**

Block 11- Low Valence Condition 3	
1	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 3 Average rating: 2.3 Average rating: 2.5
2	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 7 Average rating: 2.3 Average rating: 2.5
3	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 5 Average rating: 2.3 Average rating: 2.5
4	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 3 Average rating: 2.3 Average rating: 2.5
5	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 7 Average rating: 2.3 Average rating: 2.5
6	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 5 Average rating: 2.3 Average rating: 2.5
7	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 248 Number of Reviews: 3 Average rating: 2.3 Average rating: 2.5
8	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 248 Number of Reviews: 7 Average rating: 2.3 Average rating: 2.5
9	<<Pair K>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 248 Number of Reviews: 5 Average rating: 2.3 Average rating: 2.5
Purchase Intention:	

Block 11- Low Valence Condition 3
If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely

***** Choice 12 (Respondents were randomly assigned to one of the following 27 options)**

Block 12- Low Valence Condition-Decoy	
1	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 420 Average rating: .1 Average rating: 2.3
2	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 420 Average rating: 2.1 Average rating: 2.3
3	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 420 Average rating: 2.1 Average rating: 2.3
4	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 316 Average rating: 2.1 Average rating: 2.3
5	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 316 Average rating: 2.1 Average rating: 2.3
6	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 316 Average rating: 2.1 Average rating: 2.3
7	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 248 Average rating: 2.1 Average rating: 2.3
8	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 248 Average rating: 2.1 Average rating: 2.3
9	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 248 Average rating: 2.1 Average rating: 2.3

Block 12- Low Valence Condition-Decoy	
10	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 3 — Average rating: 2.3 Camera B — Number of Reviews: 420 — Average rating: 2.5
11	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 2.3 Camera B — Number of Reviews: 420 — Average rating: 2.5
12	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 4.3 Camera B — Number of Reviews: 420 — Average rating: 4.5
13	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 3 — Average rating: 2.3 Camera B — Number of Reviews: 316 — Average rating: 2.5
14	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 2.3 Camera B — Number of Reviews: 316 — Average rating: 2.5
15	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 2.3 Camera B — Number of Reviews: 316 — Average rating: 2.5
16	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 3 — Average rating: 2.3 Camera B — Number of Reviews: 248 — Average rating: 2.5
17	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 2.3 Camera B — Number of Reviews: 248 — Average rating: 2.5
18	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 2.3 Camera B — Number of Reviews: 248 — Average rating: 2.5
19	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 3 — Average rating: 2.1 Camera B — Number of Reviews: 420 — Average rating: 2.5
20	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 Camera B — Number of Reviews: 420

Block 12- Low Valence Condition-Decoy		
	Average rating: 2.1	Average rating: 2.5
21	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	Camera B Number of Reviews: 420 Average rating: 2.5
22	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.1	Camera B Number of Reviews: 316 Average rating: 2.5
23	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	Camera B Number of Reviews: 316 Average rating: 2.5
24	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.1	Camera B Number of Reviews: 316 Average rating: 2.5
25	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 2.1	Camera B Number of Reviews: 248 Average rating: 2.5
26	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	Camera B Number of Reviews: 248 Average rating: 2.5
27	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.1	Camera B Number of Reviews: 248 Average rating: 2.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Attention check**

For the online retailer website mentioned earlier, what is the MAXIMUM star rating a product can have?

3-Star	5-Star	7-Star	10-Star

I am randomly answering the questions without even reading them.

1-Completely Disagree	2	3	4	5	6	7-Completely Disagree

***** Demographic questions**

What is your gender?
What is your age?

Design Study 2

***** Introduction**

You are invited to participate in a research study on consumer behavior. It will take about 10-15 minutes to answer all of the questions. Please be as honest and accurate as you can. There is no physical or psychological risk involved in this study to you. The records of this study will be kept completely private and confidential. Any report of this study will not include any information that will make it possible to identify you as a participant. Your participation in this study is entirely voluntary.

***** Online Shopping Experience**

How often do you shop online?

- at least once a week
- at least once a month
- at least once every couple of months
- at least once every six months
- once a year or less
- I don't shop online

*****Promotion/Prevention Scale (Lockwood, Jordan, and Kunda 2002)**

Each of the following statements concerns how you may be evaluating the product you just saw. Please indicate your agreement with each statement by selecting the appropriate option.

	Completely Disagree 1	2	3	4	5	6	7	8	Completely Agree 9
In evaluating this product, I am more concerned about achieving success rather than avoiding failure.									
When I evaluate this product, I first consider what is good about the product.									
When evaluating this product, I consider achieving positive consequences from using it.									
I am randomly answering the questions without even reading them.									
If I buy this product, I will feel excited about the purchase.									
When evaluating this product, I first consider aspects of this product that I like.									
In evaluating this product, I am more concerned about avoiding failure rather than achieving success.									
I am randomly answering the questions without even reading them.									

When I evaluate this product, I first consider what is bad about the product.									
When evaluating this product, I consider preventing negative consequences from using it.									
If I buy this product, I will feel safe about the purchase.									
When evaluating this product, I first consider aspects of this product that I dislike.									

***** Explaining the Task**

Imagine that you are shopping for a Digital Camera. For each camera, the retailer's website shows the number of consumer reviews and the average star ratings using a 5-star system, with 5 being the highest rating and 1 being the lowest rating.

On the next few pages you will be shown pairs of cameras. For each pair, please indicate which one you would be more likely to buy.

***** Choice 1 (Respondents were randomly assigned to one of the following nine options)**

Block 1- Medium Valence Condition 1	
1	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 3.5 Camera B — Number of Reviews: 3 — Average rating: 3.7
2	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 3.7 Camera B — Number of Reviews: 420 — Average rating: 3.5
3	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 3.7 Camera B — Number of Reviews: 420 — Average rating: 3.5
4	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.5 Camera B — Number of Reviews: 3 — Average rating: 3.7
5	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 3.7 Camera B — Number of Reviews: 316 — Average rating: 3.5
6	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 3.5 Camera B — Number of Reviews: 5 — Average rating: 3.7
7	<<Pair M>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 3 Camera B — Number of Reviews: 248

Block 1- Medium Valence Condition 1		
	Average rating: 3.7	Average rating: 3.5
8	<<Pair M>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.7	 Camera B Number of Reviews: 248 Average rating: 3.5
9	<<Pair M>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.5	 Camera B Number of Reviews: 5 Average rating: 3.7
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 2 (Respondents were randomly assigned to one of the following nine options)**

Block 2- Medium Valence Condition 2		
1	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.9	 Camera B Number of Reviews: 420 Average rating: 3.7
2	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.9	 Camera B Number of Reviews: 420 Average rating: 3.7
3	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 3.7	 Camera B Number of Reviews: 5 Average rating: 3.9
4	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.9	 Camera B Number of Reviews: 316 Average rating: 3.7
5	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.7	 Camera B Number of Reviews: 7 Average rating: 3.9
6	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.9	 Camera B Number of Reviews: 316 Average rating: 3.7
7	<<Pair P>> Please select the one that you would be more willing to buy. Camera A	 Camera B

Block 2- Medium Valence Condition 2		
	Number of Reviews: 3 Average rating: 3.9	Number of Reviews: 248 Average rating: 3.7
8	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.7	 Camera B Number of Reviews: 7 Average rating: 3.9
9	<<Pair P>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.9	 Camera B Number of Reviews: 248 Average rating: 3.7
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 3 (Respondents were randomly assigned to one of the following nine options)**

Block 3- Medium Valence Condition 3		
1	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 3.5	 Camera B Number of Reviews: 3 Average rating: 3.9
2	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.9	 Camera B Number of Reviews: 420 Average rating: 3.5
3	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 3.5	 Camera B Number of Reviews: 5 Average rating: 3.9
4	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.5	 Camera B Number of Reviews: 3 Average rating: 3.9
5	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.5	 Camera B Number of Reviews: 7 Average rating: 3.9
6	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.9	 Camera B Number of Reviews: 316 Average rating: 3.5
7	<<Pair Q>> Please select the one that you would be more willing to buy.	

Block 3- Medium Valence Condition 3		
	Camera A Number of Reviews: 5 Average rating: 3.9	Camera B Number of Reviews: 248 Average rating: 3.5
8	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.5	Camera B Number of Reviews: 3 Average rating: 3.9
9	<<Pair Q>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.9	Camera B Number of Reviews: 248 Average rating: 3.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 4 (Respondents were randomly assigned to one of the following 27 options)**

Block 4- Medium Valence Condition-Decoy		
1	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	Camera B Number of Reviews: 420 Average rating: 3.7
2	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 3.7	Camera B Number of Reviews: 7 Average rating: 3.5
3	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 3.7	Camera B Number of Reviews: 5 Average rating: 3.5
4	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5	Camera B Number of Reviews: 316 Average rating: 3.7
5	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5	Camera B Number of Reviews: 316 Average rating: 3.7
6	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.7	Camera B Number of Reviews: 5 Average rating: 3.5
7	<<Pair D>>	

Block 4- Medium Valence Condition-Decoy	
	Please select the one that you would be more willing to buy. Camera A Number of Reviews: 348 Average rating: 3.7 Camera B Number of Reviews: 3 Average rating: 3.5
8	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5 Camera B Number of Reviews: 248 Average rating: 3.7
9	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 3.5 Camera B Number of Reviews: 248 Average rating: 3.7
10	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 3.5 Camera B Number of Reviews: 420 Average rating: 3.9
11	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5 Camera B Number of Reviews: 420 Average rating: 3.9
12	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 3.9 Camera B Number of Reviews: 5 Average rating: 3.5
13	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.9 Camera B Number of Reviews: 3 Average rating: 3.5
14	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 3.5 Camera B Number of Reviews: 316 Average rating: 3.9
15	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 3.9 Camera B Number of Reviews: 5 Average rating: 3.5
16	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.9 Camera B Number of Reviews: 3 Average rating: 3.5
17	<<Pair D>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 3.9 Camera B Number of Reviews: 7 Average rating: 3.5

Block 4- Medium Valence Condition-Decoy	
18	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 3.9 Camera B: Number of Reviews: 5, Average rating: 3.5
19	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 3.9 Camera B: Number of Reviews: 3, Average rating: 3.7
20	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 3.7 Camera B: Number of Reviews: 420, Average rating: 3.9
21	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 5, Average rating: 3.7 Camera B: Number of Reviews: 420, Average rating: 3.9
22	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 3, Average rating: 3.7 Camera B: Number of Reviews: 316, Average rating: 3.9
23	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 3.7 Camera B: Number of Reviews: 316, Average rating: 3.9
24	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 5, Average rating: 3.7 Camera B: Number of Reviews: 316, Average rating: 3.9
25	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 3.9 Camera B: Number of Reviews: 3, Average rating: 3.7
26	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 3.7 Camera B: Number of Reviews: 248, Average rating: 3.9
27	<<Pair D>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 5, Average rating: 3.7 Camera B: Number of Reviews: 248, Average rating: 3.9
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10	

Block 4- Medium Valence Condition-Decoy	
Extremely Unlikely	Extremely Likely

***** Choice 5 (Respondents were randomly assigned to one of the following nine options)**

Block 5- High Valence Condition 1	
1	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 3, Average rating: 4.3 Camera B: Number of Reviews: 420, Average rating: 4.1
2	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 4.1 Camera B: Number of Reviews: 7, Average rating: 4.3
3	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 4.1 Camera B: Number of Reviews: 5, Average rating: 4.3
4	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 3, Average rating: 4.3 Camera B: Number of Reviews: 316, Average rating: 4.1
5	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 4.3 Camera B: Number of Reviews: 316, Average rating: 4.1
6	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 5, Average rating: 4.3 Camera B: Number of Reviews: 316, Average rating: 4.1
7	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 4.1 Camera B: Number of Reviews: 3, Average rating: 4.3
8	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 4.3 Camera B: Number of Reviews: 248, Average rating: 4.1
9	<<Pair E>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 4.1 Camera B: Number of Reviews: 5, Average rating: 4.3
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above?	

Block 5- High Valence Condition 1
0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely

***** Choice 6 (Respondents were randomly assigned to one of the following nine options)**

Block 6- High Valence Condition 2	
1	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 3 Average rating: 4.3 Average rating: 4.5
2	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 420 Average rating: 4.5 Average rating: 4.3
3	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 5 Average rating: 4.3 Average rating: 4.5
4	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 316 Average rating: 4.5 Average rating: 4.3
5	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 7 Average rating: 4.3 Average rating: 4.5
6	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 5 Average rating: 4.3 Average rating: 4.5
7	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 248 Number of Reviews: 3 Average rating: 4.3 Average rating: 4.5
8	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 248 Average rating: 4.5 Average rating: 4.3
9	<<Pair F>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 5 Number of Reviews: 248 Average rating: 4.5 Average rating: 4.3
Purchase Intention:	

Block 6- High Valence Condition 2
If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely

***** Choice 7 (Respondents were randomly assigned to one of the following nine options)**

Block 7- High Valence Condition 3	
1	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 420 Average rating: 4.5 Average rating: 4.1
2	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 7 Average rating: 4.1 Average rating: 4.5
3	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 420 Number of Reviews: 5 Average rating: 4.1 Average rating: 4.5
4	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 3 Average rating: 4.1 Average rating: 4.5
5	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 316 Average rating: 4.5 Average rating: 4.1
6	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 316 Number of Reviews: 5 Average rating: 4.1 Average rating: 4.5
7	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 3 Number of Reviews: 248 Average rating: 4.5 Average rating: 4.1
8	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 7 Number of Reviews: 248 Average rating: 4.5 Average rating: 4.1
9	<<Pair G>> Please select the one that you would be more willing to buy. Camera A Camera B Number of Reviews: 248 Number of Reviews: 5 Average rating: 4.1 Average rating: 4.5

Block 7- High Valence Condition 3
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely

***** Choice 8 (Respondents were randomly assigned to one of the following 27 options)**

Block 8- High Valence Condition-Decoy	
1	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 420, Average rating: 4.3 Camera B: Number of Reviews: 3, Average rating: 4.1
2	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 4.1 Camera B: Number of Reviews: 420, Average rating: 4.3
3	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 5, Average rating: 4.1 Camera B: Number of Reviews: 420, Average rating: 4.3
4	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 3, Average rating: 4.1 Camera B: Number of Reviews: 316, Average rating: 4.3
5	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 7, Average rating: 4.1 Camera B: Number of Reviews: 316, Average rating: 4.3
6	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 316, Average rating: 4.3 Camera B: Number of Reviews: 5, Average rating: 4.1
7	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 3, Average rating: 4.1 Camera B: Number of Reviews: 248, Average rating: 4.3
8	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248, Average rating: 4.3 Camera B: Number of Reviews: 7, Average rating: 4.1
9	<<Pair H>> Please select the one that you would be more willing to buy. Camera A: Number of Reviews: 248 Camera B: Number of Reviews: 5

Block 8- High Valence Condition-Decoy		
	Average rating: 4.3	Average rating: 4.1
10	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.3	 Camera B Number of Reviews: 420 Average rating: 4.5
11	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 4.5	 Camera B Number of Reviews: 7 Average rating: 4.3
12	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 4.5	 Camera B Number of Reviews: 5 Average rating: 4.3
13	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.5	 Camera B Number of Reviews: 3 Average rating: 4.3
14	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.5	 Camera B Number of Reviews: 7 Average rating: 4.3
15	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.3	 Camera B Number of Reviews: 316 Average rating: 4.5
16	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.5	 Camera B Number of Reviews: 3 Average rating: 4.3
17	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 4.3	 Camera B Number of Reviews: 248 Average rating: 4.5
18	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 4.3	 Camera B Number of Reviews: 248 Average rating: 4.5
19	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.1	 Camera B Number of Reviews: 420 Average rating: 4.5
20	<<Pair H>> Please select the one that you would be more willing to buy. Camera A	 Camera B

Block 8- High Valence Condition-Decoy		
	Number of Reviews: 420 Average rating: 4.5	Number of Reviews: 7 Average rating: 4.1
21	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 4.5	 Camera B Number of Reviews: 5 Average rating: 4.1
22	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.5	 Camera B Number of Reviews: 3 Average rating: 4.1
23	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 315 Average rating: 4.5	 Camera B Number of Reviews: 7 Average rating: 4.1
24	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 4.5	 Camera B Number of Reviews: 5 Average rating: 4.1
25	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.5	 Camera B Number of Reviews: 7 Average rating: 4.1
26	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 4.5	 Camera B Number of Reviews: 5 Average rating: 4.1
27	<<Pair H>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 4.1	 Camera B Number of Reviews: 248 Average rating: 4.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Choice 9 (Respondents were randomly assigned to one of the following nine options)**

Block 9- Low Valence Condition 1		
1	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.5	 Camera B Number of Reviews: 420 Average rating: 2.1
2	<<Pair I>> Please select the one that you would be more willing to buy.	

Block 9- Low Valence Condition 1	
	Camera A Number of Reviews: 420 Average rating: 2.1 Camera B Number of Reviews: 7 Average rating: 2.5
3	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 2.1 Camera B Number of Reviews: 5 Average rating: 2.5
4	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.5 Camera B Number of Reviews: 316 Average rating: 2.1
5	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 2.5 Camera B Number of Reviews: 316 Average rating: 2.1
6	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.5 Camera B Number of Reviews: 316 Average rating: 2.1
7	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.5 Camera B Number of Reviews: 248 Average rating: 2.1
8	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 2.5 Camera B Number of Reviews: 248 Average rating: 2.1
9	<<Pair I>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 2.1 Camera B Number of Reviews: 5 Average rating: 2.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely	

***** Choice 10 (Respondents were randomly assigned to one of the following nine options)**

Block 10- Low Valence Condition 2	
1	<<Pair J>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 2.1 Camera B Number of Reviews: 3 Average rating: 2.3
2	<<Pair J>>

Block 10- Low Valence Condition 2	
	Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.3
3	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.3
4	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 3 — Average rating: 2.3 Camera B — Number of Reviews: 316 — Average rating: 2.1
5	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.1 Camera B — Number of Reviews: 7 — Average rating: 2.3
6	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 2.3 Camera B — Number of Reviews: 316 — Average rating: 2.1
7	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 3 — Average rating: 2.3
8	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 2.3 Camera B — Number of Reviews: 248 — Average rating: 2.1
9	<<Pair J>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.1 Camera B — Number of Reviews: 5 — Average rating: 2.3
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely — Extremely Likely	

***** Choice 11 (Respondents were randomly assigned to one of the following nine options)**

Block 11- Low Valence Condition 3	
1	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.3 Camera B — Number of Reviews: 3 — Average rating: 2.5

Block 11- Low Valence Condition 3	
2	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 2.5 Camera B — Number of Reviews: 420 — Average rating: 2.3
3	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 — Average rating: 2.3 Camera B — Number of Reviews: 5 — Average rating: 2.5
4	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.3 Camera B — Number of Reviews: 3 — Average rating: 2.5
5	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 7 — Average rating: 2.5 Camera B — Number of Reviews: 316 — Average rating: 2.3
6	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 316 — Average rating: 2.3 Camera B — Number of Reviews: 5 — Average rating: 2.5
7	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.3 Camera B — Number of Reviews: 3 — Average rating: 2.5
8	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 248 — Average rating: 2.3 Camera B — Number of Reviews: 7 — Average rating: 2.5
9	<<Pair K>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 5 — Average rating: 2.5 Camera B — Number of Reviews: 248 — Average rating: 2.3
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely — Extremely Likely	

***** Choice 12 (Respondents were randomly assigned to one of the following 27 options)**

Block 12- Low Valence Condition-Decoy	
1	<<Pair L>> Please select the one that you would be more willing to buy. Camera A — Number of Reviews: 420 Camera B — Number of Reviews: 3

Block 12- Low Valence Condition-Decoy		
	Average rating: 2.3	Average rating: 2.1
2	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 2.1	 Camera B Number of Reviews: 420 Average rating: 2.3
3	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	 Camera B Number of Reviews: 420 Average rating: 2.3
4	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.1	 Camera B Number of Reviews: 316 Average rating: 2.3
5	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 2.1	 Camera B Number of Reviews: 316 Average rating: 2.3
6	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	 Camera B Number of Reviews: 316 Average rating: 2.3
7	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 2.3	 Camera B Number of Reviews: 3 Average rating: 2.1
8	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 248 Average rating: 2.3	 Camera B Number of Reviews: 7 Average rating: 2.1
9	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	 Camera B Number of Reviews: 248 Average rating: 2.3
10	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.3	 Camera B Number of Reviews: 420 Average rating: 2.5
11	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 420 Average rating: 2.5	 Camera B Number of Reviews: 7 Average rating: 2.3
12	<<Pair L>> Please select the one that you would be more willing to buy. Camera A	 Camera B

Block 12- Low Valence Condition-Decoy		
	Number of Reviews: 420 Average rating: 2.5	Number of Reviews: 5 Average rating: 2.3
13	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 316 Average rating: 2.5	Camera B Number of Reviews: 3 Average rating: 2.3
14	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 316 Average rating: 2.5	Camera B Number of Reviews: 7 Average rating: 2.3
15	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 5 Average rating: 2.3	Camera B Number of Reviews: 316 Average rating: 2.5
16	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 248 Average rating: 2.5	Camera B Number of Reviews: 3 Average rating: 2.3
17	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 7 Average rating: 2.3	Camera B Number of Reviews: 248 Average rating: 2.5
18	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 248 Average rating: 2.5	Camera B Number of Reviews: 5 Average rating: 2.3
19	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 420 Average rating: 2.5	Camera B Number of Reviews: 3 Average rating: 2.1
20	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 420 Average rating: 2.5	Camera B Number of Reviews: 7 Average rating: 2.1
21	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 420 Average rating: 2.5	Camera B Number of Reviews: 5 Average rating: 2.1
22	<<Pair L>> Please select the one that you would be more willing to buy.	
	Camera A Number of Reviews: 316 Average rating: 2.5	Camera B Number of Reviews: 3 Average rating: 2.1
23	<<Pair L>> Please select the one that you would be more willing to buy.	

Block 12- Low Valence Condition-Decoy		
	Camera A Number of Reviews: 7 Average rating: 2.1	Camera B Number of Reviews: 316 Average rating: 2.5
24	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 316 Average rating: 2.5	 Camera B Number of Reviews: 5 Average rating: 2.1
25	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 7 Average rating: 2.1	 Camera B Number of Reviews: 248 Average rating: 2.5
26	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 5 Average rating: 2.1	 Camera B Number of Reviews: 248 Average rating: 2.5
27	<<Pair L>> Please select the one that you would be more willing to buy. Camera A Number of Reviews: 3 Average rating: 2.1	 Camera B Number of Reviews: 248 Average rating: 2.5
Purchase Intention: If you had the need to buy a digital camera right now, how likely is it that you would buy the chosen camera above? 0 1 2 3 4 5 6 7 8 9 10 Extremely Unlikely Extremely Likely		

***** Attention check**

For the online retailer website mentioned earlier, what is the MAXIMUM star rating a product can have?

3-Star	5-Star	7-Star	10-Star

***** Demographic questions**

What is your gender?

What is your age?

Appendix 2

Pretest Study 1 and 2

How often do you shop online?

- at least once a week
- at least once a month
- at least once every couple of months
- at least once every six months
- once a year or less

- I don't shop online

Imagine that you are shopping on an online retailer website. Each product page on the retailer website shows product information as well as consumer reviews and ratings of the product using a 5-star system, with 5 being the highest rating and 1 being the lowest rating.

These three questions were shown in the beginning of the pretest; the order of the appearance of the questions were randomized.

For each of the following product categories, what **minimum** star rating does the product need to have for you to consider it to be a **GOOD** product?

	1-star	1.5-star	2-star	2.5-star	3-star	3.5-star	4-star	4.5-star	5-star
Digital Cameras									
USB Flash Drive									
Music Albums									
Hotel Rooms									
Vitamins and Dietary Supplements									
Shoes									

For each of the following product categories, what **minimum** star rating does the product need to have for you to consider it to be an **ACCEPTABLE** product?

	1-star	1.5-star	2-star	2.5-star	3-star	3.5-star	4-star	4.5-star	5-star
Digital Cameras									
USB Flash Drive									
Music Albums									
Hotel Rooms									
Vitamins and Dietary Supplements									
Shoes									

For each of the following product categories, **below** what star ratings would make you to consider the product as a **BAD** product?

	1-star	1.5-star	2-star	2.5-star	3-star	3.5-star	4-star	4.5-star	5-star
Digital Cameras									
USB Flash Drive									
Music Albums									
Hotel Rooms									
Vitamins and Dietary Supplements									
Shoes									

For each of the following product categories, what star ratings would make you to consider the product as a **MEDIOCRE** product?

	1-star	1.5-star	2-star	2.5-star	3-star	3.5-star	4-star	4.5-star	5-star
Digital Cameras									
USB Flash Drive									
Music Albums									
Hotel Rooms									
Vitamins and Dietary Supplements									
Shoes									

Volume related questions:

For you to consider a given product from each of the following product categories to **have a lot of consumer reviews**, how many reviews does it need to have?

	Less than 10 reviews	11-50 reviews	50-100 reviews	100-200 reviews	200-500 reviews	500-1000 reviews	Above 1000 reviews
Digital Camera							
USB Flash Drive							
Music Albums							
Hotel Rooms							
Vitamins and Dietary Supplements							
Shoes							

How many online reviews would make you feel like the product from each of the following product categories to have only **a small number of reviews?**

	Less than 10 reviews	11-50 reviews	50-100 reviews	100-200 reviews	200-500 reviews	500-1000 reviews	Above 1000 reviews
Digital Camera							
USB Flash Drive							
Music Albums							
Hotel Rooms							
Vitamins and Dietary Supplements							
Shoes							

When you choose what to buy in each of the following product categories, how important **is the role** of consumer online reviews in your purchase decision.

	1-Not important at all	2	3	4	5	6	7-Very important
Digital Camera							
USB Flash Drive							
Music Albums							
Hotel Rooms							

	1-Not important at all	2	3	4	5	6	7-Very important
Vitamins and Dietary Supplements							
Shoes							

For each of the following product categories, how likely is it that you will **SEARCH** for consumer reviews before making a purchase decision?

	0-Never	1	2	3	4	5	6	7	8	9	10-Always
Digital Camera											
USB Flash Drive											
Music Albums											
Hotel Rooms											
Vitamins and Dietary Supplements											
Shoes											

Attention check question:
For the online retailer website mentioned earlier, what is the MAXIMUM stars of consumer reviews a product can have:

3-star	5-star	7-star	10-star

Demographic questions:
What is your gender?
What is your age?

Pretest Study 3

You are invited to participate in a research study on consumer behavior. It will take about 5 minutes to answer all of the questions. Please be as honest and accurate as you can. There is no physical or psychological risk involved in this study to you. The records of this study will be kept completely private and confidential. Any report of this study will not include any information that will make it possible to identify you as a participant. Your participation in this study is entirely voluntary.

*****Promotion/Prevention Scale (Lockwood, Jordan, and Kunda 2002)**
Each of the following statements concerns how you may be evaluating the product you just saw. Please indicate your agreement with each statement by selecting the appropriate option.

	Completely Disagree 1	2	3	4	5	6	7	8	Completely Agree 9
In evaluating this product, I am more concerned about achieving success rather than avoiding failure.									

	Completely Disagree 1	2	3	4	5	6	7	8	Completely Agree 9
When I evaluate this product, I first consider what is good about the product.									
When evaluating this product, I consider achieving positive consequences from using it.									
I am randomly answering the questions without even reading them.									
If I buy this product, I will feel excited about the purchase.									
When evaluating this product, I first consider aspects of this product that I like.									
In evaluating this product, I am more concerned about avoiding failure rather than achieving success.									
I am randomly answering the questions without even reading them.									
When I evaluate this product, I first consider what is bad about the product.									
When evaluating this product, I consider preventing negative consequences from using it.									
If I buy this product, I will feel safe about the purchase.									
When evaluating this product, I first consider aspects of this product that I dislike.									

It is shown that products with **enhancing** characteristics are the ones that increase fun in life; these are things people like to have in order to feel good/happy.
Considering this definition, please indicate how **enhancing** are the following product categories.

	Not Enhancing 1	2	3	4	5	6	Enhancing 7
Candy and Chocolate Gift							
Mouthwash							
SunScreen							
Perfume							
Anti-virus Software							
Photo-enhancing Software							
Weed Killer							
Fertilizer							

t is shown that products with **protecting** characteristics as the ones that increase safety in life; these are things people need to have in order to avoid negative consequences.
Considering this definition, please indicate how **protecting** are the following product categories.

	Not Enhancing 1	2	3	4	5	6	Enhancing 7
Candy and Chocolate Gift							
Mouthwash							
SunScreen							
Perfume							
Anti-virus Software							
Photo-enhancing Software							
Weed Killer							
Fertilizer							

Attention check question:
Please choose number five for this question.

1	2	3	4	5	6	7

Demographic questions:
What is your gender?
What is your age?

ESSAY 2

EXAMINING THE INTERACTION EFFECT BETWEEN ONLINE REVIEW VOLUME/VALENCE AND DIFFERENT TYPES OF SCARCITY APPEAL

Online shopping has been steadily growing in the last decade. Consumers increasingly prefer online shopping to traditional shopping (Morris 2013). The number of online shoppers in the US has increased from 172.3 million in 2010 to 196.6 million in 2014 and is expected to reach 215 million in 2018, which would account for almost 64% of the US population (eMarketer 2015). This rising trend shows the importance of further investigating the online shopping arena.

Online platforms allow consumers to share their online shopping experience with others; hence, consumers can use this available information to reduce the search cost. This has led to consumers' increasing reliance on online reviews (Nielsen 2012), as online reviews allow them to access opinions of a wide group of people (Duan, Gu, and Whinston 2008 a).

Numerous studies have examined the impact of online reviews on firm performance. Empirical evidence shows that online reviews affect sales (Mahajan, Muller, and Kerin 1984; Zufryden 2000; Mayzlin 2006; Sen and Lerman 2007; Ye, Law, and Gu 2009; Amblee and Bui 2011), brand equity (Zhu and Zhang 2010; Ho-Dac, Carson, and Moore 2013), advertising expenditure (Dellarocas 2006; Mayzlin 2006; Lee and Bradlow 2011; Ogut and Onur Tas 2012) and consumer purchase decision-making processes (Senecal and Nantel 2004; Smith, Menon, and Sivakumar 2005; Chua and Banerjee 2013; Sparks, Perkins, and Buckley 2013). Online reviews are now considered a new element among marketers' communication tools (Chen and Xie 2008), and a new marketing research tool (Lee and Bradlaw 2011).

The impact of online review volume and valence has been widely studied in the literature. Previous empirical studies show that online reviews' volume is positively related to sales (e.g., Chen, Woo, and Yoon 2004; Chevalier and Mayzlin 2006; Liu 2006; Zhu and Zhang 2010). Furthermore, extant literature shows that online reviews' valence affects sales (e.g. Chevalier and Mayzlin 2006) and consumers' choice (Vermeulen and Seegers 2009; Ye et al. 2011; Sparks and Browning 2011; Ogunt and Onur Tas 2012; Floh, Koller, and Zauner 2013; Mauri and Minazzi 2013).

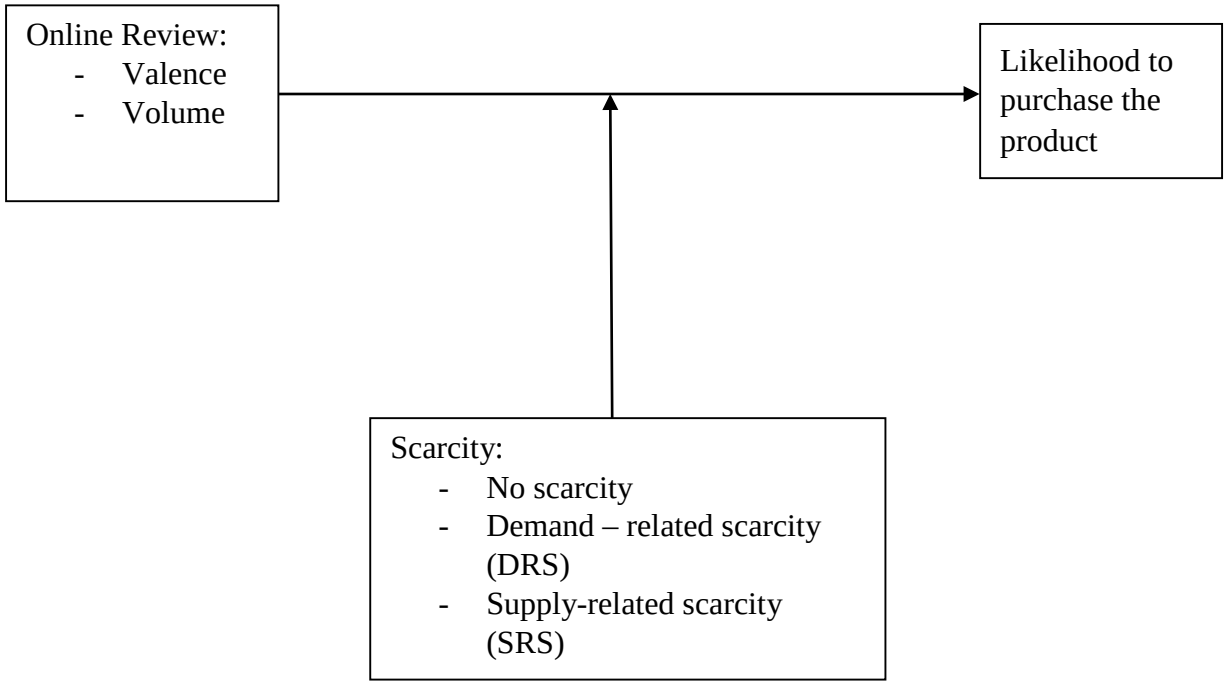
Existing studies make important contributions to our understanding of online reviews' impact on consumer behavior and firm financial performance. Yet, there is a gap in the literature regarding the interaction between firm-generated promotional information and online reviews. Specifically, online reviews do not exist in a vacuum, and it is possible that firm message can change how people react to online reviews. The current research aims to address this gap by examining the influence of scarcity appeals as a common marketing promotional strategy on the relationship between online review volume and valence and consumers' purchase decisions. Marketers frequently use scarcity appeals in the online retailing context. This research adopts an integrative approach by looking at this firm marketing tactic and consumer-generated content in a single framework (see Figure 1 for the conceptual framework). It argues that such a firm-level strategy can interact with online reviews components (i.e. volume and valence) to indirectly affect sales. Two studies will be conducted to test the conceptual framework using both a lab experiment as well as real-world data.

The current research contributes to the literature in several ways. First, by looking at marketing tactics and components of consumer generated content in a single framework, this research points to the opportunity in coordinating firm-generated marketing activities with

consumer-generated content to achieve maximum effectiveness. The insights from the research will help identify optimal coordination strategies between one type of firm marketing messages, scarcity appeal and online consumer reviews. They will reveal how the use of different types of scarcity appeals can be applied to work with the valence versus volume component of consumer reviews to increase the likelihood to purchase the products. Second, current research contributes to online review literature by introducing the moderating role of scarcity appeals on online review-sales relationship. Scarcity appeals can explain the inconsistencies that exist in the online review literature regarding the effect of volume and valence on sales and purchase intentions. In this research, it is argued that the presences of scarcity appeals can strengthen/weaken the effect of volume and valence of online reviews on firm sales and consumers' purchase intention. Finally, the findings of this essay contributes to scarcity appeals literature as previous research mostly used lab experiments instead of real-world data from Amazon.com.)

The rest of this essay is organized as follows: The next section presents an in-depth review of the relevant literature on online review and a brief summary of research on scarcity appeals. Then two empirical studies and their related hypotheses regarding the interaction between scarcity appeals and consumer reviews will be discussed in detail. I conclude with a discussion of the theoretical and managerial implications of the findings from this research.

FIGURE 1- CONCEPTUAL MODEL



Review of the Literature

Online Reviews

With the rise of online shopping, the important role of online reviews is more intensified. Online review is defined as "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet" (Hennig-Thurau et al. 2004, p. 39). Consumers rely on online review information in purchase-related decision-making (e.g., Senecal and Nantel 2004; Smith, Menon, and Sivakumar 2005; Chua and Banerjee 2013). Empirical studies have shown that product with online reviews have a higher chance to be considered by consumers (Park and Nicolau 2015). There are uncertainties associated to online shopping. Consumers use online reviews as a main source of information to reduce uncertainties. Extant literature studied the importance of online reviews and its effects on both firm sales performance and consumers' purchase decision-making (Park and Nicolau 2015). A brief summary of these studies will be provided later in this essay.

Additionally, numerous studies dug deeper in components of online review. They looked at how volume and valence of online reviews might differently affect firm performance and consumers' decision-making (e.g., Chen, Woo, and Yoon 2004; Liu 2006; Chevalier and Mayzlin 2006; Park, Lee, and Han 2007; Zhu and Zhang 2010; Ludwig et al 2013). Volume of online reviews refers to the aggregate number of reviews that is given for a product/service. It is shown that higher number of online reviews is positively related to sales (e.g., Chen, Woo, and Yoon 2004; Chevalier and Mayzlin 2006; Liu 2006; Zhu and Zhang 2010). Online review volume also positively affects consumers' purchase intention, as higher number of online reviews is an indicator of the reliability of the information conveyed (Salganik and Watts 2008).

Furthermore, valence of online reviews is the average star rating that is associated with a product service. It is shown that positive valence of online reviews is also positively related to firm financial performance and consumer choice (e.g., Chevalier and Mayzlin 2006; Vermeulen and Seegers 2009; Ye et al. 2011; Sparks and Browning 2011; Ogunt and Onur Tas 2012; Floh, Koller, and Zauner 2013; Mauri and Minazzi 2013). Positive online review valence signals high quality to marketplace (Dellarocas, Zhang and Awad 2007).

So far, the importance of online reviews, in general, and a brief summary of research on online review volume and valence was presented. In the following section, an overview of relevant online review literature is discussed. First, the impact of online reviews on firm activities and consumer decision-making process is presented. Then, a summary of related research over scarcity appeals is discussed.

Impact of Online Reviews on Firm and Individual Level Outcomes

Online reviews can influence both consumer decision-making processes and the sales of companies (Liu and Park 2015). Below is a summary of the research that addresses these two different influences of online reviews.

Impacts of Online Reviews on Firm Level Outcomes

Extant literature showed that online reviews affect firms (e.g. brand equity, sales, and advertising expenditures). Below is a brief overview of the literature that studied the impact of online reviews at the firm level.

Online Reviews as a Marketing Tool. For example, the result of Lee and Bradlaw research (2011) showed that companies could benefit from these free available data (online reviews). Lee and Bradlaw (2011) did a market structure analysis of 6 years' online review data of digital cameras. Their results revealed the effectiveness of online review as a new marketing

research tool. Similarly, Levy, Duan, and Boo (2013) demonstrated that online reviews should be used as an effective marketing research tool. They did a content analysis over 1,946 one-star reviews, which were posted for eighty-six hotels in Washington D.C hotels between 2000 and 2011. They also analyzed the 225 managerial responses (11.6%) and showed that establishing a systematic feedback system would significantly help the performance of hotels.

Generally, there is an information asymmetry when it comes to true product quality. The supplier is completely aware of the quality but the consumer lacks enough information. In such a condition, companies with lower quality may be able to promote themselves in ways that eventually make the supplier with premium quality exit the marketplace. As Ogut and Onur Tas (2012) argued signaling strategies used by suppliers to enhance awareness are crucial. They suggested that online reviews are used as a marketing tactic to signal to the less-informed consumers and affect their purchasing behavior. Moreover, Chevalier and Mayzlin (2006) indicated that the effect of online reviews on purchase decision was so important that firms tried to strategically manipulate them (i.e. posting favorable reviews for their own products and/or "bad-mouthing" those of their competitors (Dellarocas 2006)). On the topic of importance of promotional chat, Mayzlin (2006) applied a game theoretic approach and demonstrated that promotional chats are persuasive and are in contrast with signaling literature (Signaling theory suggests that firms advertise their high-quality products). She argued that firms spend their advertising expenditures to promote inferior products by using promotional chat, and concluded that promotional chat and advertising can be substituted.

Online Reviews Affect Sales. Building on the diffusion theory, Mahajan, Muller and Kerin (1984) showed that word-of-mouth (hereafter WOM) is positively related to sales of new products, and that negative WOM plays a significant role in diffusion and adoption of new

products. Their results showed that, it is essential for marketing managers to monitor negative electronic WOM, especially at the early stages of introduction. Zufryden (2000) also demonstrated that promotional website activity for a new film is significantly related to the box-office performance of the film. He showed that promotions on websites provide an effective way to introduce the new film to the marketplace, and to increase and maintain awareness about the film. Similarly, Ye, Law, and Gu (2009) investigated online review data on the largest travel site in China (Ctrip.com) and showed that there is a significant relationship between online reviews and online sale of hotel rooms. Moreover, Amblee and Bui (2011) explored sales of microproducts (shorts e-book) on Amazon. Based on their results microproducts with online reviews had better sales rank compared with the ones without online reviews. Finally, according to Sen and Lerman (2007) online reviews are an important mechanism to evaluate a given firm's products past performance and future sales.

Online Reviews Interact with Brands. Ho-Dac, Carson, and Moore (2013) examined the effect of online reviews on weak and strong brands across different product categories (mature vs. emerging) and showed that positive online reviews increase sales for weak brands but there was no such effect for strong brands. For strong brands, the product would benefit from the powerful brand name. Powerful brand name would generate positive online reviews overtime. Based on Ho-Dac, Carson, and Moore's (2013) results, online reviews were not important for strong brands; however, they could make a difference for weak brands. Their results are quite different from the results of Zhu and Zhang (2010) study. Zhu and Zhang (2010) studied the impact of online reviews in video games industry .The results of their study showed that for unpopular video games, online reviews are more helpful in the later stages of product life cycle.

However, Ho-Dac, Carson, and Moore's study (2013) showed that for weak brands, online reviews are helpful at earlier stages of product life cycle.

Impacts of Online Reviews at an Individual-Level

Empirical studies have shown that consumers evaluate online reviews as a source of information in an online shopping context. Numerous studies have shown that consumers use online reviews to make purchase related decisions (e.g., Senecal and Nantel 2004; Smith, Menon, and Sivakumar 2005; Chua and Banerjee 2013). For example, Senecal and Nantel (2004) investigated consumers' application of recommendation sources and the impact that it had on their product choices. Based on their results, consumers who consulted recommendation systems chose the product twice as often as those who did not. Also in their studies, they showed that type of products matter: consumers would consult online recommendation system more for experience products than for search products. Because shopping for experience product is more subjective, and consumers cannot have an accurate judgment until they actually use the product. Moreover, Smith, Menon, and Sivakumar (2005) demonstrated that consumers used online review information for their purchase decision purposes, regardless of specific characteristic of the reviewers. They showed that depending on the shopping goal (utilitarian vs. hedonic), consumers adapted their use of online reviews sources (i.e. for utilitarian purposes they found peer recommendation trustworthy and for hedonic purposes they found editorial recommendations trustworthy). Park, Lee, and Han (2007) conducted experiments and showed that higher number of online reviews increased the purchase intention. Moreover, low-involvement consumers were more affected by higher number of online reviews; however, high-involvement consumers were more affected by higher quality of online reviews. Similarly, Sher and Lee (2009) showed that for consumers with low level of skepticism, higher number of online

reviews was positively related to their purchase intention. Consumers with high level of skepticism were not persuaded by quality and quantity of online reviews.

In addition, the extent that consumers rely on online review information is contingent on different variables. For example, Zhu and Zhang (2010) showed that internet-savvy consumers were more likely to rely on online reviews. Using psychological choice model (Hansen 1967), they adapted a difference-in-differences approach to study the effectiveness of online reviews. Specifically, they studied the role of consumer and product characteristics on consumers' reliance on online reviews in the video games industry. Moreover, Chua and Banerjee (2013) showed that consumers found online reviews on Tripadvisor.com to be largely reliable for decision-making purposes. They looked at online review data for 249 hotels in Singapore (19,691 reviews from 17,021 unique users). Furthermore, Sparks, Perkins, and Buckley (2013) manipulated how source of online reviews (visiting tourists vs. resort management), content of them (vague vs. specific), and logo (presence or absence of eco-certification) influenced consumers' belief, attitude and purchase intention. The results suggested that consumers found more specific reviews from other fellow visitors more trustworthy.

As it was discussed earlier, in an online shopping context, consumers rely on online reviews information extensively. The important role of online reviews in purchase-related decision-making processes requires marketers to coordinate their marketing tactics with them. Current research looks at scarcity appeals. Marketers and advertiser extensively use scarcity appeals as a promotional technique. For example, Stock and Balachander (2005) took a game-theoretic approach to study scarcity appeals from sellers' perspectives. Specifically, they looked at sellers' prices and quantity decisions. The results of their study showed that high quality sellers limit quantity to signal quality to uninformed customers. This promotional technique has

been frequently used in online shopping contexts. This research provides an integrative conceptual framework and studies the interaction of scarcity appeals as marketing tactic with online reviews as consumer-generated content.

Next section presents a summary of related research on scarcity appeals literature.

Scarcity Appeals

Scarcity Appeals Enhance Perceived Value

Lynn (1991) introduced the commodity theory (Brock 1968) to the marketing literature to explain the psychological effects of scarcity. Based on this theory, scarcity will enhance the value (or desirability) of products (Lynn 1992). According to Lynn's meta-analysis (1991), this prediction of commodity theory is true and indeed scarce products are considered more desirable. In another study Sirgy, Johar, and Wood (1986) applied attribution theory and showed that product scarcity is an expression of higher value. Moreover, Lynn (1992) suggested that people's naïve economic theory may lead them to assume that scarce products are expensive, and this assumed expensiveness in turn, would lead to higher desirability of scarce products. For example, Lynn and Bogert (1996) showed that scarcity increased anticipated price appreciation for collectible products (e.g. stamps). They argued that scarcity appeals made consumers develop naïve economic theories. This in turn creates this perception, that scarce product would become more valuable. In addition, Jung and Kellaris (2004) showed that purchase intention for scarce products were higher because scarcity appeals influenced subjective desirability. Wu and Hsing (2006) took a more integrative approach to study multiple mediating variables' effect on scarcity-value enhancement relationship for wristwatches. By using structural equation modeling, they showed that scarcity appeals would lead to assumed expensiveness, perceived quality, perceived symbolic benefits, and perceived monetary sacrifice, and these in turn would lead to purchase intention. Furthermore, Eisend (2008) used third person effect theory (Davison 1983) to explain how scarcity appeals enhance value perception, which in turn increase purchase intention. They showed that the relationship between perceived value and purchase intention was mediated by "personal susceptibility and the susceptibility of others" (p. 33). This study showed

the role of persuasion knowledge on decision making of consumers. Third person effect theory suggests that individuals have different perceptions of the impact of communication messages on themselves compared with others. They either underestimate the impact of communication messages on themselves or overestimate the impact on others. Because they assume that "it's not clever" (p. 34) to be persuaded by commercial messages that are been communicated by advertising. They argued that scarcity appeals might reverse this effect and consumers associate higher values to the product. Additionally, Mittone and Savadori (2009) conducted two experiments and showed that scarcity bias exists. They tested the demand-related scarcity and competition due to demand scarcity (i.e. when products become scarce in marketplace due to excessive demand). Their results demonstrated that consumers had a scarcity bias and they perceived scarce product more valuable.

Scarcity Appeals and Need for Uniqueness

Numerous studies have shown that consumers with high need for uniqueness would be more influenced by scarcity appeals. Johar and Sirgy (1991) hypothesized that using scarcity appeals to market a product that is associated with conspicuous consumption is more persuasive. Atlas and Snyder (1978) did not find a significant interaction between need for uniqueness and scarcity appeals. However, the result of Lynn's (1991) meta-analysis showed that consumers with higher need for uniqueness are more likely to find scarce products desirable. One of the more recent studies (Cheema and Kaikati 2010) also showed that consumers with high need for uniqueness were more attracted to scarce products.

Scarcity Appeals as a Heuristic in Purchase-Related Decision Making

Based on Lynn (1992), it is assumed that consumers who do not have enough motivation to process excessive information will use scarcity appeals as a peripheral cue in their decision

making process (Petty and Cacioppo 1986). In a similar vein, Suri, Kohli, and Monroe (2007, p.91) used Heuristic-Systematic dual processing model (HSM) (Chaiken 1980) and showed that for motivated consumers the increase in arousal associated with scarcity appeals "will constrain the ability to process information, resulting in heuristic processing of information" (Cialdini 2009). Numerous studies have shown that scarcity appeals increase purchase intentions of consumers (Jung and Kellaris 2004; Wu and Hsing 2006; Eisend 2008). For example, Jung and Kellaris (2004) studied the moderating effect of different variables on the relationship between purchase intention and scarcity appeals. They showed that scarcity appeals' effect on purchase intention was stronger for consumers in a low-context culture (US) compared with that of a high-context culture (France). Moreover, familiarity with product class also moderated this relationship, such that for a less familiar product, the influence of scarcity appeals was more pronounced, and purchase intention of consumers with higher level of uncertainty avoidance would be more positively influenced when they were exposed to scarcity appeals. Additionally, consumers with high need for cognitive closure wanted to reach a conclusion as fast as possible (Houghton and Grewal 2000), so they would use scarcity appeals as a simplifying heuristic, and their purchase intention was more positively influenced by scarcity appeals. Lee and Seidle (2012) studied how narcissists (individuals who are self-centered and have manipulative tendencies, Sedikides et al 2002) deal with scarcity appeals. The results of the two experiments showed that scarcity appeals enhanced product evaluation by narcissists. In addition, they showed that being exposed to scarcity appeals made narcissists to avoid deliberate purchase-related information processing and use the scarcity appeal as a heuristic to make purchase-related decisions. Furthermore, Aggarwal, Jun, and Huh (2011) also examined the effect of scarcity messages on purchase intention and showed that scarcity messages increase purchase intention.

In line with Cialdini (2009), they showed that not only consumers wanted a product when it was scarce, but also they wanted it most when they were in competition for it (P. 20). The empirical results of their study showed that the effect of scarcity messages on purchase intention was mediated by consumer competition (i.e. “the act of a consumer’s striving against one or more consumers for the purpose of achieving a desirable economic or psychological reward” (p 20)). They also showed that different types of brand concepts (functional vs. symbolic) moderated the relationship between scarcity messages and purchase intention such that for symbolic brands the effect of scarcity appeals were more pronounced. Similarly, Gabler and Reynolds (2013) empirically showed that level of involvement with product and/or decision moderated the relationship between scarcity appeals and consumers’ purchase intention. They showed that scarcity appeals create “emotional value” that would eventually lead to higher purchase intention .For consumers who were highly involved with purchase decision this effect became stronger.

As it was discussed earlier, online reviews are important source information for purchase decision-making purposes. Extant literature investigated the important role of online review information on consumer decision-making processes. Specifically, they have looked at how online review volume and valence affect purchase intention, helpfulness rating of online reviews, and firms’ sales. This research will first look at how firm marketing strategy (scarcity appeals) will affect the relationship between online review (volume/valence) and likelihood to purchase the product. Study 1 is developed to answer this question.

Study 1

The Moderating Role of Scarcity Appeals

Agrawal, Jun and Hu (2011) argued that when scarcity appeal exists, consumer competition is inevitable. They argued that the relationship between scarcity appeal and purchase intention is mediated by consumer competition. Previous empirical studies showed that scarcity would increase the desirability of a product (Lynn 1992; Jung and Kellaris 2004). It also influenced consumers' value perception and purchase intention (Wu and Hsing 2007; Eisend 2008; Mittone and Savadori 2009), enhanced perceived value of products and opportunities (Cialdini 1985). Suri, Kohli and Monroe (2007) showed that scarcity influenced information processing; it enhanced motivation to process information. Furthermore, scarcity appeals limit individual's freedom to benefit from products and opportunities, and this makes consumers to pay more attention to them (Ditto and Jemmott 1989).

This research builds on these existing studies and Heuristic-Systematic dual processing model (HSM) (Chaiken 1980), and argues that the presence of scarcity appeal will create arousal in consumers (Suri, Kohli, and Monroe 2007). This arousal will make consumers heuristically process information, and online review information will be used as heuristics.

Online reviews' volume and valence are two types of online review information that consumers' can readily use as mental shortcuts to make quick judgments about products. Unlike comments that demand careful consideration and interpretation, online review volume and valence information offer a fast and effortless route to making judgements regarding the popularity and quality of products. Therefore, the relationship between online review's volume and valence and likelihood to purchase the product will be more pronounced.

H1: Scarcity appeal strengthens the relationship between (a) online reviews' valence, b) online reviews' volume, and likelihood to purchase the product.

Study Design

Study 1 is conducted to investigate the interaction between online review characteristics and scarcity appeals as firm marketing tactics. This study contributes to the literature by investigating the role of scarcity appeals as a marketing strategy. Specifically, we looked at real world data to examine the interaction of online review volume and valence with scarcity appeals, which was the focus of H1.

Study 1 Data

In order to test hypothesis 1, I collected Study 1 data from the US Amazon.com website. Amazon.com sells a variety of different products and services and is a great resource for online reviews. It was also the leading e-retailer in the US in 2014 (selling $79.48 billion dollars) (Internet retailer 2015). It has been used in a number of studies on online reviews (Chen, Woo, and Yoon 2004; Chevalier and Mayzlin 2006; Amblee and Bui 2011; Cui, Lui, and Guo 2012; Ludwig et al. 2013). The antivirus software category was used as the focal category of the study. Using an automated web crawler, information on all products sold by Amazon.com in this category was gathered daily for 40 days. This resulted in 148 products in the antivirus software category. For hypothesis testing purposes, I used the information from the average of the first week for the independent and control variables, and I used these variables to predict the average sales rank outcome for the respective product at the last week of the data collection time.

Variable Operationalization

The independent variables of interest were online review valence, online review volume, and scarcity appeals. For online review volume, Chevalier and Mayzlin's (2006) procedure was

followed, which used the cumulative number of online reviews (the average of first week). This volume was log-transformed in the analysis to correct the skewness of the data. For online review valence, the procedure of previous related empirical studies (Clemons, Gao, and Hitt 2006; Dellarocas, Zhang, and Awad 2007; Cui, Lui, and Guo 2012) was followed. The average star ratings that each product has received from consumers was used (again the average of first week). The dependent variable, likelihood to purchase, was operationalized as the log-transformed average sales rank of each product on software category on Amazon.com in the last week of the data collection period (last week of data collection period). Previous studies have shown that the log-transformed sales rank on Amazon.com is a good proxy for actual sales (Chevalier and Mayzlin 2006; Cui, Lui, and Guo 2012). Variables capturing online review volume and valence. Information on price, discounts, availability of Prime shipping, the number of words in the product description, the presence of scarcity appeal, and delayed shipping was collected as control variables in the study. I calculated the average of each of these control variables over the course of the first week of data collection. Moreover, a lagged term of sales rank (the average of sales rank in the first week of data collection) was added to the model, capturing the popularity of the product in the beginning of data collection period.

Hypothesis Testing and Results

To test hypothesis 1, I conducted an ordinary least squares regression using the average review volume, the average review valence and the average scarcity appeals over the first week of data collection as the main independent variables, and log-transformed average sales rank over the last week of data collection as the dependent variable. I also included several product controls, including information on price, discounts, availability of Prime shipping, the number of words in the product description, and delayed shipping.

As the initial analysis showed, the lagged sales rank variables had a .79 correlation with volume variable. In order to avoid the collinearity problem, I removed lagged sales rank from the model.[2]Table 1 shows the results of the regression analysis. The model explained a significant portion (75%) of the variance in the dependent variable. It should be noted that as a higher sales rank indicates lower sales, a positive effect of a variable on purchase likelihood would be indicated by a negative coefficient from the model. The results showed a significant negative coefficient of review volume (β_{Volume}= -*.44*, *p=.03*). This was qualified by a significant positive interaction between volume and scarcity appeals, and by a significant negative interaction between valence and scarcity appeals (1=scarcity appeal, and 0=no scarcity appeal). In line with hypothesis 1, a significant interaction between valence of online reviews and scarcity appeals is observed ($\beta_{Valence * Scarcity}$= -.52, *p*=.01). In order to explain this, I argue that when scarcity appeals are present, consumers will use valence of online reviews as a heuristic in their information processing. That is when scarcity appeals are present, the effect of valence of online reviews on sales rank is more pronounced. However, contradicting part of H1, in presence of scarcity appeals, higher volume weakens the sales rank ($\beta_{Volume * Scarcity}$= .75, *p*=.0003). The reason could be that when scarcity appeals are present, consumers do not perceive volume information diagnostic any more. Overall, the results of study 1 suggest that when scarcity appeals are present, consumers use the scarcity message as a proxy for volume and also use the information on valence in order to make a purchase decision. Scarcity appeals strengthen the effect of valence and weakens the effect of volume on sales rank. Consequently, hypothesis 1 is partially supported. Among the control variables, price, prime shipping, and delayed shipping were not a

[2] After removing the lagged sales rank from the model I noticed the VIFs are still quite high, due to high correlation between Valence and Volume. This was caused by a large number of simultaneous 0's between the two (due to no reviews). For robustness check, I removed those cases and reran the model, and the substantive results remained the same.

significant predictor of sales rank. The number of word in product description ($\beta_{Word\ Count}$= -.*005*, *p*=.*002*) and discounts ($\beta_{Discounts}$= -.*04*, *p*<.*0001*) increased sales.

TABLE 1- STUDY 1, ORDINARY LEAST SQUARE REGRESSION RESULTS

	Model Estimate
Intercept	9.5*** (.22)
Price	.00007 (.0004)
Discount	-.04*** (.005)
Prime	-.3 (.25)
Word Count	-.005* (.002)
Scarcity	.81* (.36)
Delayed Shipping	2.47 (3.86)
Valence	-.13 (.18)
Valence^2	.01 (.07)
Volume	-.44* (.21)
Volume * Valence	-.02 (.08)
Volume * Scarcity	.75* (.25)
Valence * Scarcity	-.52 (.2)
Volume * Valence * Scarcity	-.14 (.11)
Model fit	R^2: .75 F (13, 176) = 40.76, p<.0001

Note: *p<.05, **p<.01, ***p<.0001

Study 2

Study 1 stablished the moderating role of scarcity appeal on the relationship between online review volume/valence and sales. But it only investigated one type of scarcity appeal (supply-related scarcity) that was used on Amazon.com. This study delves deeper into the different types of scarcity appeal and will shed more light on the interaction between different types of scarcity appeals and online reviews. More specifically, it argues that in the presence of a supply-related scarcity appeal, valence of online reviews is more important. However, paired with a demand-related scarcity appeal, volume of online review matters more. This implies that managers should choose the most appropriate type of scarcity appeals taking into consideration the existing volume/valence of their products' online reviews.

Moderating Role of Different Types of Scarcity Appeals

There are different types of scarcity appeals in the marketplace: demand-related scarcity (hereafter DRS), and supply-related scarcity (hereafter SRS). DRS exists when consumers compete for the product in the marketplace, and there is excessive demand; therefore, the product becomes scarce. In contrast, SRS is a business strategy entailing limiting the quantity of the available products in the marketplace from the supply side. As Balachander, Liu, and Stock (2009) demonstrated, there are several reasons why marketers do so, such as signaling high quality to uninformed customers, creating a hot product, and creating a buzz over the product (especially at the introduction phase). Balachander, Liu, and Stock (2009) empirically studied the effects of SRS (introductory inventory level) on consumer preferences in the automobile industry and tested two competing theories to explain such effects. They show that limited availability at the time of introduction lead to an increase in preference for the product, and that the effect was due to signaling, where suppliers used scarcity to signal higher quality to uninformed customers.

Several recent empirical studies investigated the impact of these two different strategies (SRS versus DRS). They showed differential persuasive impact of SRS and DRS on consumer decision-making process (Gierl and Huettl 2010; Aggarwal, Jun and Huh 2011; Jeong and Kwon 2012; Ku, Kuo, and Ku 2012; Ku et al. 2013; Aguirre-Rodriguez 2013). For example, Gierl and Huettl (2010) investigated the moderating role of scarcity appeal type (DRS versus SRS) on the relationship between scarcity appeal use and conspicuous consumption. The authors suggested three categories of products associated with conspicuous consumption: 1) products used as social status symbol, 2) products used to satisfy the need for uniqueness of consumers, and 3) products used to express conformity with an exclusive social group. Their empirical study showed that SRS appeals were more effective when it was applied to products associated with conspicuous consumption than DRS appeals were.

Gierl and Huettl (2010) argued that DRS and SRS appeals have two contradicting effects: quality effects and interpersonal effects. They showed that the quality effect makes DRS more effective, as consumers use DRS appeals as a positive signal of a product's quality. In the meantime, the interpersonal effect of DRS can lead to lower evaluations of products because conformity to a large group of other people and the fact that the product had been bought by many other consumers so far would negatively affect the impact of these appeals. The balance between these two opposing effects depends on whether the product is intended for conspicuous consumption. For non-conspicuous consumption, the interpersonal effect becomes completely irrelevant, making the positive quality effect dominant. In comparison, the quality signaling effect of SRS appeals becomes irrelevant for products associated with conspicuous consumption, while the interpersonal effect of SRS appeals would matter the most.

Ku, Kuo, and Kuo (2012) examined the underlying mechanism that is associated with different types of scarcity appeals (i.e. DRS vs. SRS). Specifically, they investigated consumers' purchase intention by evaluating the role of their regulatory focus orientation on their susceptibility to different types of scarcity. The results showed that consumers with prevention orientation were more susceptible to DRS appeals. Prevention orientation is associated with risk avoidance and minimizing negative outcomes (Higgins 1997). Hence, a DRS appeal implies that a high number of consumers bought the product already; this signals high quality and leads to herding behavior among prevention-focused consumers. In contrast, consumers with a promotion orientation are more susceptible to SRS appeals. Promotion orientation is associated with seeking achievement and social status (Higgins 2012), and these goals are consistent with the mental states that a SRS appeal aims to evoke. Therefore, Ku, Kuo, and Kuo's (2012) results indicated that consumers with prevention orientation had higher purchase intention when they were exposed to DRS appeals, and consumers with promotion orientation had higher purchase intention when they were exposed to SRS appeals.

Ku et al (2013) examined the differential effects of SRS and DRS appeals on purchase intention and the moderating role of hedonic versus utilitarian products. The results of the experiments showed that DRS appeals were more influential when consumers were shopping for utilitarian products, whereas SRS appeals were more influential when consumers were shopping for hedonic products. They also looked at self-monitoring characteristics of individuals and showed that interpersonal effects exist. Specifically, low self-monitoring consumers would readily consider demand-scarce products without being worried about the fact that their purchase decision will be scrutinized. However, high self-monitoring consumers required a match between the reasons for the scarcity (i.e. DRS or SRS) and the decision context.

A few other factors moderating the relative effectiveness of DRS versus SRS appeals have been examined in the literature. Van Herpen, Pieters, and Zeelenberg (2009) studied need for uniqueness. They showed that the bandwagon effect induced by the quality and popularity signals conveyed by DRS appeals will be reversed when need for uniqueness in consumers was threatened. In such situations, SRS may be more effective instead. Roy and Sharma (2015) showed that consumers with a high level of need for uniqueness would be more susceptible to SRS appeals in ads. This in turn would have a greater impact on their attitude and purchase intention. However, consumers with low levels of need for uniqueness would be less influenced by SRS appeals. In addition, Roy and Sharma (2015) showed that under loss message framing in ads, consumers with higher level of need for uniqueness would be more prone to SRS than to DRS.

Aguirre-Rodriguez (2013) also studied DRS and SRS appeals in the advertising context. Building on the persuasion knowledge model (PKM) (Friestad and Wright 1994), she showed that SRS appeals in advertisement led to higher credibility of advertiser compared to DRS appeals, and SRS appeals were less likely to activate persuasion knowledge in consumers. She argued that it is less likely for suppliers to have precise information about the demand in the marketplace and, as a result, assertions about the high demands in advertisement are perceived as a persuasion attempt. However, it is plausible for suppliers to have exact information about their inventory level, and supply-related claims are perceived to be more credible.

Based on the empirical evidence from literature, DRS appeals lead to a higher expectation of popularity of commodities in consumers' minds that in turn results in a higher expectation of the number of the commodity sold. With such popular products, consumers will expect a higher number of online reviews (i.e. higher volume). If companies use a DRS appeal

but there are not many online reviews available (i.e. low volume), this inconsistency of information will result in an expectation disconfirmation (Golder, Debanjan, and Moorman 2012). The inconsistency can even lead to suspicion and in turn negative attitudes towards DRS appeal.

In comparison, for SRS appeals, previous empirical studies show that marketers primarily use these appeals to trigger need for uniqueness, symbol, and social status needs in consumers and to satisfy consumers' expectation of exclusivity. Because consumers who are attracted to SRS appeals usually look for achievement, uniqueness, social status, they will be more focused on online review valence as an indicator of the offer's attractiveness. This results in consumers paying more attention to the valence of online reviews in the presence of an SRS appeal. For an exclusive offer, consumers would expect that only a few buyers would have purchased the product and posted an online review. Furthermore, the effect of online review volume on consumers' purchase intentions is via affecting their perception of popularity of the product, and increasing the validity of the valence information. Under an SRS appeal, consumers are more likely to value exclusiveness over popularity, and consequently they would expect to see a lower number of online reviews. As a result, low volume of reviews will not negatively affect consumers' perceptions. Furthermore, a high volume of available online reviews could indicate the accessibility of the product and that would contradict the SRS claim that the product is exclusive (inconsistent information). The above discussion leads to the following hypothesis:

H2: Scarcity appeal type moderates the effect of online review's volume and valence on consumers' likelihood to purchase the product, such that:

H2a: The effect of online review valence on likelihood to purchase the product is stronger for supply-related-scarcity than for demand-related scarcity.

H2b: The effect of online review volume on likelihood to purchase the product is stronger for demand-related-scarcity than for supply-related scarcity.

Study Design

To test H2a and H2b, an experiment featuring a 2 (Demand-Related-Scarcity, Supply-Related-Scarcity) * 2 (Review valence: high/low) *2 (Review volume: high/low) between-subject design was conducted. Hotel-booking served as the study context. The Internet is one of the most important sources of information for travel shopping (Mauri and Minazzi 2013). Based on eMarketer (2015), percentage of worldwide online travel sales for 2016 is expected to be 46.2%. Due to the "high involvement" and "high risk" nature of travel booking decisions (Papathanassis and Knolle 2011), the percentage of consumers who consult online travel-related websites (including online reviews) before making a purchase decision has been steadily increasing (Anderson 2012). Combined with the frequent use of scarcity appeals in this industry, hotel booking represented a perfect context for studying the interaction between online review volume/valence and different types of scarcity appeal.

260 participants (Mean age= 36.6, Female= 56%) were hired from MTURK to participate in this study for monetary compensation. They were randomly assigned to one of the eight treatment conditions. Participants were told that they are booking a room for their next vacation and were asked to evaluate a screenshot of a hotel information page (see Appendix 1 for the experimental stimuli and the rest of the questionnaire). The hotel information page was varied to reflect the scarcity appeal and the valence and volume levels for the corresponding condition. For the DRS conditions, the page said "The most popular hotel in the area, only a few rooms left", whereas the page in the SRS conditions showed "Small boutique hotel. Only a few rooms left". Besides the scarcity appeal, the hotel information page also included summary information

about the hotel and showed the volume and average valence of consumer reviews (478 and 11 for high vs. low volume, and 4 and 3.75 for high vs. low valence). After being exposed to the hotel information, participants reported their booking intention of the hotel on an 11-item scale adapted from Sparks and Browning (2011), with 0 being "Not likely at all" and 10 being "Very likely". In the end, they answered questions related to manipulation checks, attention checks, and demographic questions.

Pretest

In order to check the effectiveness of the scarcity appeals manipulations, 32 participants (Mean age= 32.9, Female=72%) were hired from MTURK to participate in a pretest in exchange for monetary compensation. Participants chose between two differently advertised hotels, one featuring the DRS appeal and the other featuring the SRS appeal as described earlier.

After indicating which of the two hotels they would choose, respondents were asked to answer two 8-point scale manipulation-check questions: (1) "In your opinion, which one of the hotels above have fewer rooms?" (SRS), with 1 being Hotel A has fewer rooms, and 8 being Hotel B had fewer rooms; and (2) "In your opinion, which one of the hotels above is in higher demand?" (DRS) with 1 being Hotel A is in higher demand, and 8 being Hotel B is in higher demand.

Two one tailed t-test were conducted to see if the manipulations worked. The results of the t-tests showed that participants were much more likely to select Hotel A (the one with the DRS appeal) than Hotel B (the one with the SRS appeal) when asked which option was in higher demand ($Mean_{DRS\text{-}Manipulation}=2.03, t= -10.48, df= 31, p<.0001$). When asked which one of the two hotels has fewer rooms, participants were more likely to select the hotel with the SRS appeal

than the one with the DRS appeal (Mean $_{SRS\text{-}Manipulation}$= 6.96, t= 6.95, df= 31, p<.0001). These results support the effectiveness of the scarcity appeal manipulations. (See Appendix 2)

Hypothesis Testing and Results

Analysis of Covariance (ANCOVA) was used to test H2(a) and H2(b). Booking intention served as the dependent variable, and online review volume, valence, and type of scarcity appeal were the independent variables. Age and gender were included as covariates. The results of this analysis is shown in Table 2.

TABLE 2- STUDY 2, ANCOVA RESULTS

Variables	**Mean Square**	**F**	**P-Value**
Intercept	15292	3483.74	<.0001 ***
Scarcity	3	.74	.39
Volume	16	3.69	.05 *
Valence	40	9.16	.002 **
Age	0	.04	.83
Gender	1	.13	.71
Volume * Valence	1	.27	.60
Scarcity * Volume	2	.48	.48
Scarcity * VAL	0	.001	.97
Scarcity * Volume *Valence	18	4.175	.04 *

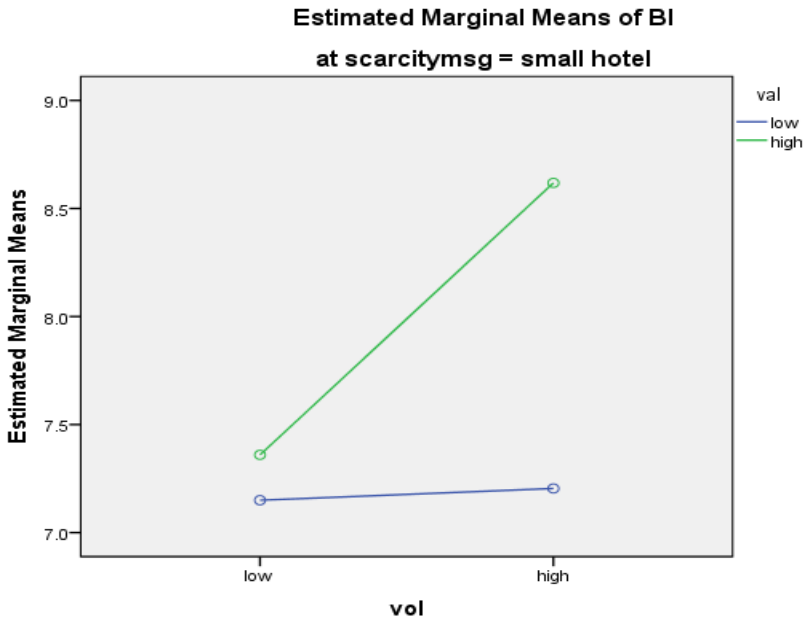
Note: *p<.05, **p<.01, ***p<.0001

Results revealed a significant main effect for both volume (*F (1, 16) = 3.69, p=.05, partial-η^2= .013*) and valence (*F (1, 40) = 9.16, p=.002, partial-η^2= .033*). Although H2(a) and H2(b) would have resulted in significant two-way interactions between scarcity appeal type and volume as well as between scarcity appeal type and valence, the only significant interaction in the analysis was a three-way interaction among volume, valence, and scarcity appeal type (*F (1, 18) = 4.17, p=.04, partial-η^2= .015).* Figure 2 portrays the mean booking intention under each of the eight experimental conditions. H2(a) hypothesized that the effect of valence would be higher when an SRS appeal is present than when a DRS appeal is present. As the figure shows, when

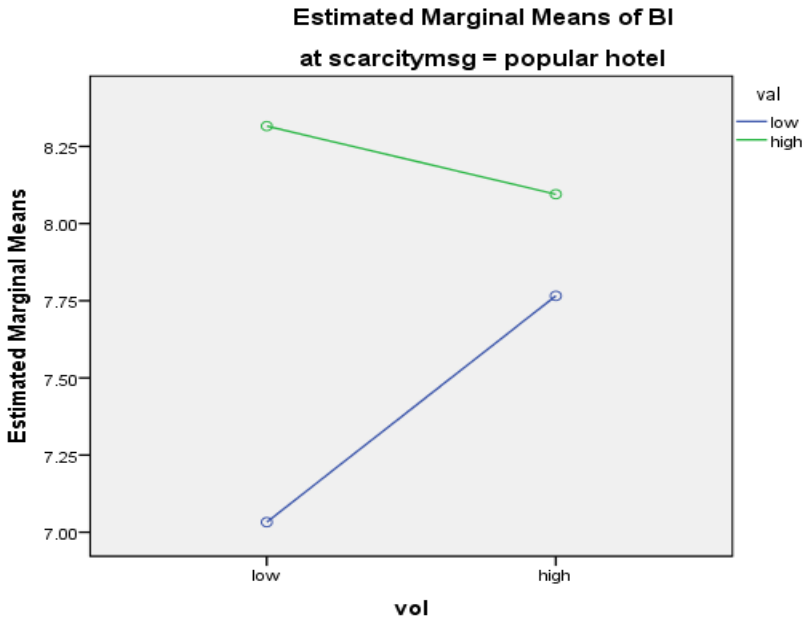
the SRS appeal was present, booking intention was significantly affected by valence when volume was high (Mean $_{\text{low-valence, high-volume, SRS}}$ = 7.20, Mean $_{\text{high-valence, high-volume, SRS}}$ = 8.61, t = 2.82, p = .005) but not when volume was low (Mean $_{\text{low-valence, low-volume, SRS}}$ = 7.14, Mean $_{\text{high-valence, low-volume, SRS}}$ = 7.36, t = .43, p = .65). In contrast, under DRS appeal, valence had a significant effect on booking intention when volume was low (Mean $_{\text{low-valence, low-volume, DRS}}$ = 7.30, Mean $_{\text{high-valence, low-volume, DRS}}$ = 8.32, t = 2.20, p = .02) but not when volume was high (Mean $_{\text{low-valence, high-volume, DRS}}$ = 7.75, Mean $_{\text{high-valence, high-volume, DRS}}$ = 8.10, t = .60, p = .51). This is not consistent with H2(a), which hypothesized that valence effects would be stronger under SRS appeal than under DRS appeal.

For review volume, it had a significant effect on booking intention only when valence was high under the SRS appeal condition (Mean $_{\text{high-volume, low-valence, SRS}}$ = 7.36, Mean $_{\text{high-volume, high-valence, SRS}}$ = 8.61, t = 2.54, p = .01), and it did not affect booking intention at either valence level under the DRS appeal condition (Mean $_{\text{high-volume, low-valence, DRS}}$ = 8.32, Mean $_{\text{high-volume, high-valence, DRS}}$ = 8.10, t = .38, p = .71; Mean $_{\text{low-volume, low-valence, DRS}}$ = 7.30, Mean $_{\text{low-volume, high-valence, DRS}}$ = 7.75, t = 1.34, p = .18). This is in contradiction to H2(b), which hypothesized that volume effect would be stronger under DRS than under SRS.

FIGURE 2- STUDY 2, CONTRAST MEAN PLOTS



Covariates appearing in the model are evaluated at the following values: gender = 1.57, age = 36.61



Covariates appearing in the model are evaluated at the following values: gender = 1.57, age = 36.61

This pattern of results suggests that the relationship among the three variables may be more complex than originally hypothesized. Instead, consumers appear to primarily use review volume combined with the scarcity appeal as primary heuristics. When review volume is consistent with the scarcity appeal type used (i.e., low volume for SRS appeal and high volume for DRS appeal), they may find the consistency sufficient in assisting them to make a decision and hence do not further consider valence. However, when review volume is inconsistent with the scarcity appeal type (i.e., having high volume with the SRS appeal and low volume with the DRS appeal), valence becomes an important third piece of information to potentially explain the inconsistency. As both DRS and SRS attempt to signal a "better" product, more positive valence is considered more consistent with such appeals and hence leads to higher booking intention. I recognize that this is an ad-hoc explanation of what may have happened, and this study does not offer a direct test of the possibilities suggested here. This is an important question for future research.

TABLE 3- STUDY 2, PLANNED CONTRAST OF MEANS

Scarcity	Volume	Mean-valence (I)	Mean-valence (J)	Mean Difference (I-J)	F	SE	P-Value
SRS	low	low 7.146	high 7.361	-.215	.203	.477	.653
	high	low 7.206	high 8.611	-1.405	7.92	.499	.005**
DRS	low	low 7.307	high 8.32	-1.283	4.901	.580	.028*
	high	low 7.758	high 8.107	-.350	.425	.536	.515
Scarcity	Valence	Mean-volume (I)	Mean-volume (J)	Mean Difference (I-J)	F	SE	P-Value
SRS	low	low 7.146	high 7.206	-.06	.015	.484	.902
	high	low 7.361	high 8.611	-1.25	6.451	.492	.012*
DRS	low	low 7.307	high 7.758	-.721	1.768	.542	.185
	high	low 8.32	high 8.107	.213	.137	.575	.711

Discussion

Given the uncertainties and risks associated with online shopping, online shoppers increasingly leverage the online platform to share and benefit from each other's experiences. This results in an increasing reliance on online reviews (Nielsen 2012), as online reviews allow them to access the opinions and experiences of a wide group of people (Duan, Gu, and Whinston 2008 a). Although the impact of online reviews on firm performance and on individuals' purchase decision-making has been studied extensively in the literature, little work has been done on the interaction of firm strategies and online reviews. Instead, these two are typically treated as two parallel components in consumer decisions. Addressing this gap, the current research proposes an integrative framework combining firm marketing strategies (scarcity appeals) and consumer generated content (online reviews). It posits that companies can coordinate their marketing strategies with online reviews to increase effectiveness. Specifically, it shows the moderating effect of scarcity appeals on the relationship between review volume and valence and consumers' purchase decisions.

Using Amazon.com data, Study 1 finds that scarcity appeals makes consumers to pay more attention to the average rating for the item on Amazon.com. According to the results of the OLS regression, buyers on Amazon.com use the average rating (valence) of reviews as a heuristic in their purchase decision-making when scarcity appeals are present. However, scarcity appeals weaken the effect of the number of online reviews (volume). The possible explanation for this could be that consumers use the scarcity appeals as a proxy of volume on Amazon.com and that is why in presence of scarcity appeals, the effect of volume on sales rank on Amazon.com is reduced. Extending this finding of study 1 to consider different types of scarcity appeals, the lab experiment (Study 2) revealed a complex pattern of interaction among valence,

volume, and scarcity appeal type. It is argued in this framework that although consumer-generated content (i.e. online review valence and volume) have a main effect on likelihood to purchase the product, this effect is contingent on the presence of marketing messages of firms (Scarcity appeals). The results of the main experiment in study 2 revealed that higher valence effect was significant only when volume was also high in combination with a SRS appeal. In the meantime, higher volume had a significant effect when valence was high under SRS appeal. Moreover, lower volume had a significant effect when valence was high under DRS appeal.

Managerial Implications

In the first study of this essay, the sales rank of 148 items from photo-enhancing software category was monitored in a 40-day period. A main effect for the effect of number of online reviews and the average rating of online reviews on sales rank was observed. Moreover, the presence of scarcity appeals was captured by the data crawler that was used for this study. A significant negative interaction between the average rating of online reviews and scarcity appeals is observed. This observed interaction was in the direction that was hypothesized, meaning that the presence of scarcity appeals would strengthen the role of the average rating of online reviews on sales rank. In other words, in line with previous research in HSM literature, it is found that when scarcity appeal is present, consumers use the valence of online reviews as a heuristic in their purchase decision-making. The same effect was observed for the number of online reviews in the opposite direction. The reason for this could be that scarcity appeals are used as proxy of popularity of the item on Amazon.com by buyers, therefore, the effect of volume on sales rank is weakened.

The second essay of current research looked into different types of scarcity appeals that is used by marketers. The context of this study is tourism industry as both online reviews and

scarcity appeals are extremely relevant; consumers use online reviews to decide about the place that they will stay in their destination and marketers use different kinds of scarcity appeals on online booking websites to make their hotel more appealing. The result of the experiment of this study showed in line with previous research, there is a main effect of the number of online reviews and the average ratings of online reviews on consumers' booking intention. Further investigation demonstrated that there is a three-way interaction among the number of online reviews, the average rating of online reviews, and scarcity appeals. More specifically, the findings of this study showed that when supply-related scarcity is present, for hotels with higher number of online reviews, higher average ratings would positively affect consumers' booking intention.

In summary, there are three main managerial implications. First, firm generated marketing messages do influence the effect of user-generated content. Second, specifically on the use of scarcity appeals, Study 1 findings suggest that it may help accentuate the impact of review valence and may be especially beneficial for products with high-valence reviews. However, Study 2 findings caution against the blind use of this tactic. It may be more advantageous to pair high review volume products with DRS appeal to maintain the consistency of the information. When high review volume is paired with a DRS appeal, review valence (as long as it is within an acceptable range) no longer affects purchase intention. This could be advantageous for firms that have an acceptable but not stellar review ratings. Finally, of course not all products will have high volume reviews. Not all hope is lost on such products. Using a SRS appeal may justify the low review volume and dilute the potentially negative impact of low volume. In both of the situations above, it is important to maintain consistency between review volume and the type of

scarcity appeal used. The consistent information can help consumers, especially those using heuristic decision making, to make a favorable decision on the product.

Limitation and Future Research

Current research offered both theoretical and managerial contributions, however, there are limitations that need to be discussed. As it can offer scholars new insights for future research and practitioners hints to the constraint of the research.

The first study of this essay only used Amazon.com as the source of data. As a result, the findings of the first study might not be generalized to smaller businesses. It is worthy to see if the same effect exists in other websites. Therefore, replication of the first study in other websites can add value to the online review literature. Moreover, in the first study, we only looked at one product category. Investigating other different product categories could increase the reliability of the findings. In first study, there was no exact measurement for sales, as Amazon.com does not share that kind of information. Instead, Sales Rank was used as a proxy variable. Future research could look into the websites that offer access to the exact sales information. Additionally, in the second study, although a three-way interaction is found, the discovered pattern was more complex than initially hypothesized. Future research could shed more light on this three-way interaction as it shows that the relationship between the number of online reviews, the average rating of online reviews and firm marketing strategies is far more complicated. Yet another limitation in this study is that it only looked at scarcity appeal as the marketing tactic. Future research could look into some other marketing tactics that can be explored. For example, price promotions, as people also associate price discounts/promotion as a signal of (often low) quality, which could work consistently or not consistently with review valence.

In conclusion, consumer reviews or firm-generated marketing messages do not exist in their own vacuum. Instead they can moderate each other's impact on consumers' purchase decisions. The current research represents an initial step towards understanding such interactions. I hope it will help stimulate more conversations and further research on how firms can adapt their marketing tactics based on the existing mix of user-generated content on their products.

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Appendices

Appendix 1

Design Study 2

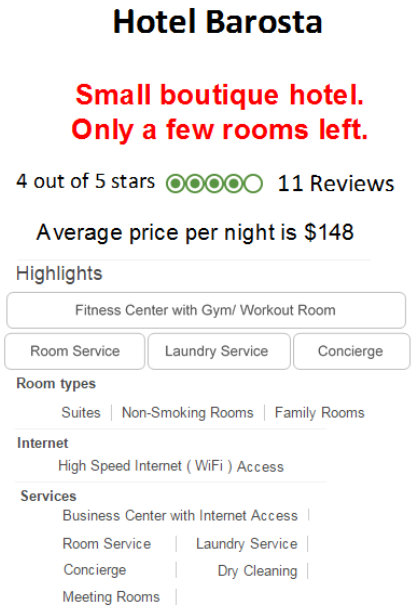
You are invited to participate in a research study on consumer behavior. It will take about 10 minutes to answer all of the questions. Please be as honest and accurate as you can. There is no physical or psychological risk involved in this study to you. The records of this study will be kept completely private and confidential. Any report of this study will not include any information that will make it possible to identify you as a participant. Your participation in this study is entirely voluntary.

*** Booking Experience
Have you ever booked a hotel room online?

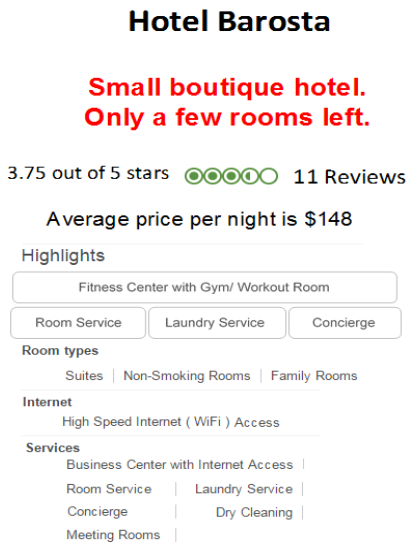
- Yes
- No

*** Introduction
Please imagine that you are planning for your next trip and you have visited Tripadvisor.com in order to find a suitable hotel for your stay. Please review the information of Hotel Barosta on the next page, and answer its following questions.
(Respondents were randomly assigned to one of the following 8 conditions).

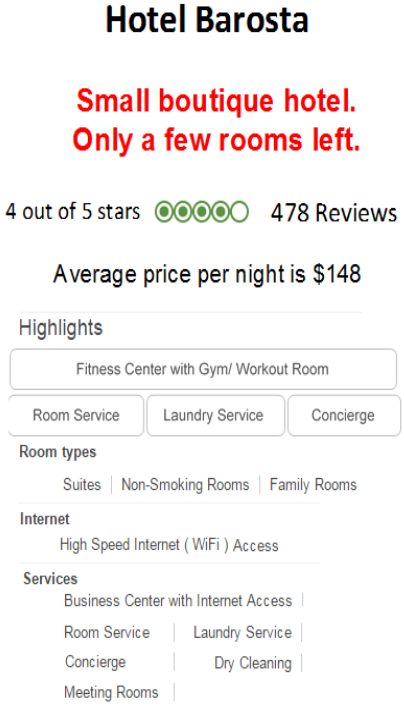
*** Manipulation for high valence, low volume, and supply-related scarcity



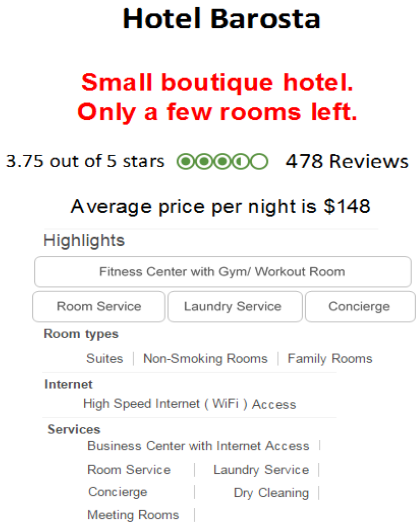
*** Manipulation for low valence, low volume, and supply-related scarcity



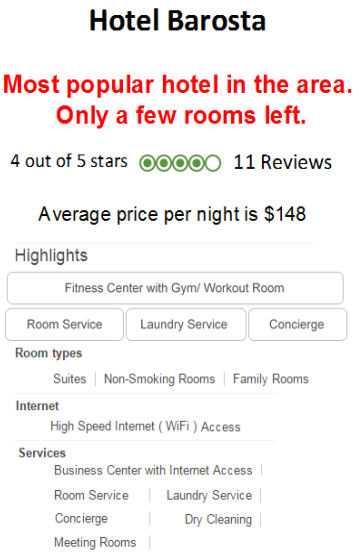
*** Manipulation for high valence, high volume, and supply-related scarcity



*** Manipulation for low valence, high volume, and supply-related scarcity

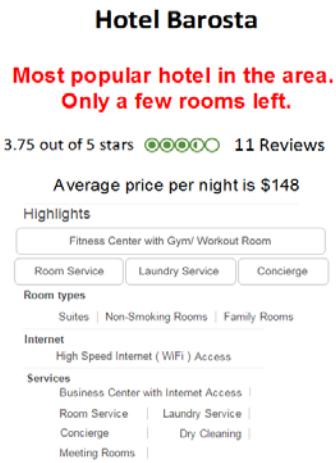


*** Manipulation for high valence, low volume, and demand-related scarcity



*** Manipulation for low valence, high volume, and demand-related scarcity

*** Manipulation for low valence, low volume, and demand-related scarcity



*** Manipulation for low high, high volume, and demand-related scarcity

Measurements

Please answer the following questions accurately based on what you have reviewed.

***** Booking intention (Sparks and Browning 2011)**

After evaluating the information about Hotel Barosta, how likely is it that you would book a room at this hotel if it were in a location you were travelling to?

Not likely at all 0	1	2	3	4	5	6	7	8	9	Very likely 10

***** Advertisement Deceptiveness (Kirmani and Zhu 2007)**

In my opinion, the presented information about Hotel Barosta is:

Unbelievable	1	2	3	4	5	6	7	8	9	Believable
Not Truthful	1	2	3	4	5	6	7	8	9	Truthful
Deceptive	1	2	3	4	5	6	7	8	9	Non-deceptive

***** Manipulation Check Questions**

Hotel Barosta has limited supply of rooms.

Completely Disagree 1	2	3	4	5	6	7	8	Completely Agree 9

The rooms at Hotel Barosta are in high demand.

Completely Disagree 1	2	3	4	5	6	7	8	Completely Agree 9

***** Attention Check Questions**

Please Recall the information that you reviewed earlier.

Which one of the following messages was shown with the hotel information? (The order of choices was randomized)

- Large popular hotel. Only a few rooms left.
- Small boutique hotel. Only a few rooms left.
- In high demand! Only a few rooms left.
- Most popular hotel in the area. Only a few rooms left.

What was the average rating of the hotel? (The order of choices was randomized)

- 3 out of 5 stars
- 3.5 out of 5 stars
- 3.75 out of 5 stars
- 4 out of 5 stars

- 4.5 out of 5 stars

What was the number of available online reviews? (The order of choices was randomized)

- 11 reviews
- 478 reviews
- 57 reviews
- 255 reviews
- 623 reviews

***** Demographic Variables**

What is your gender?

What is your age?

Appendix 2

Pretest

You are invited to participate in a research study on consumer behavior. It will take about 5 minutes to answer all of the questions. Please be as honest and accurate as you can. There is no physical or psychological risk involved in this study to you. The records of this study will be kept completely private and confidential. Any report of this study will not include any information that will make it possible to identify you as a participant. Your participation in this study is entirely voluntary.

*** Booking Experience
Have you ever booked a hotel room online?

- Yes
- No

***** Treatment**
Please select the one that you would be more willing to book a room at.

Hotel A	Hotel B
Average price per night $148 Most popular hotel in the area. Only a few rooms left.	Average price per night $148 Small Boutique hotel. Only a few rooms left.

***** Measurement**
Please indicate your opinion based on what you reviewed above.

In your opinion, which one of the hotels above have fewer rooms?

Hotel A has fewer rooms.							Hotel B has fewer rooms.

In your opinion, which one of the hotels above is in higher demand?

Hotel A is in higher demand.							Hotel B is in higher demand.

***** Attention Check Questions**

Which of the following messages was shown with the hotel that you chose earlier?

- Large popular hotel. Only a few rooms left.
- Small boutique hotel. Only a few rooms left.
- In high demand! Only a few rooms left.
- Most popular hotel in the area. Only a few rooms left.

Please choose number 5 for this question.

1	2	3	4	5	6	7

***** Demographic Variables**

What is your gender?

What is your age?

VITA

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CONFERENC PROCEEDINGS

- Kordrostami, Elika, Rahmani, Vahid, Kordrostami, Melika, "The Consequences of Inconsistent Information on Consumers' Online Shopping Behavior", accepted at 2016 AMA Summer Educator's Conference, Atlanta, GA.
- Rahmani, Vahid, Kordrostami, Elika, "A Process-Based Approach to Understand Consumer Behavior in the Twenty-First Century", accepted at 2016 AMA Summer Educator's Conference, Atlanta, GA.
- Rahmani, Vahid, Kordrostami, Elika, "Standardization versus Adaptation: An Assessment of Consumers' Psychographic Factors", accepted at: 2016 AMA Summer Educator's Conference, Atlanta, GA.
- Kordrostami, Elika, Rahmani, Vahid, Kordrostami, Melika, "Dual Effect of Envy on Sale's Performance-A Conceptual Framework", accepted at 2015 AMA Summer Educator's Conference, Chicago, IL.
- Rahmani, Vahid, Kordrostami, Elika, Kordrostami, Melika, "Gender, Persuasion Knowledge, and Price-Quality Perceptions", accepted at 2015 AMA Summer Educator's Conference, Chicago, IL.
- Rahmani, Vahid, Kordrostami, Elika, Kordrostami, Melika, "A comprehensive Framework for Persuasion Knowledge", accepted at 2015 AMA Summer Educator's Conference, Chicago, IL.
- Kordrostami, Melika, Kordrostami, Elika, Rahmani, Vahid, "The Relationship between Organizational Personality and Brand Personality, And Its Impact on the Business Performance", accepted at 2015 AMA Summer Educator's Conference, Chicago, IL.
- Kordrostami, Melika, Kordrostami, Elika, Rahmani, Vahid, "Consumers' reactions to brand failures, role of attachment style", accepted at 2015 AMA Summer Educator's Conference, Chicago, IL.
- Rahmani, Vahid, Kordrostami, Elika, Gopinath, Mahesh- "A comprehensive model for glocalization-An integration framework and extension." Accepted at: Fall 2013 conference, Academy of Business Research, San Antonio, TX.

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Jun 07 – Feb 08 System Group (Tehran, Iran) (Market Management and Customer Care Specialist)