EFFECT OF ONLINE REVIEW MODALITY ON ONLINE SHOPPERS' ATTITUDE AND BEHAVIOR

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The online review function has become a common part of online retail websites. Nowadays, many online retailers allow consumers to upload images and videos along with their text reviews. Yet, there is limited study of the effects of single-modality or multi-modality reviews.

Based on the Dual Coding Theory and Stimulus – Organism – Response framework, this study examines the effects of review modality, review valence and the interaction between review modality and review valence on perceived review quality, attitudes towards the product, attitudes towards the e-Retailer, and purchase intention. Three hundred and forty-seven online shoppers participated in a 3 (Review Modality: text only vs. text with picture vs. text with video) $\times 2$ (Review Valence: positive vs. negative) experiment.

The study generates four major findings: 1) Text with picture reviews and text with video reviews generate the most favorable attitude towards the product and text with video reviews generate the most favorable attitude towards the e-Retailer. 2) Review modality influences purchase intention through the affective states (attitude towards the product/e-Retailer), instead of cognitive states (perceived review quality). 3) Positive reviews generate more positive attitudes towards the product than negative reviews, while attitudes towards the e-Retailers remain positive regardless of review valence. 4) No significant interaction effect between review modality and review valence is identified on the attitudes towards the product or the e-Retailer.

The study discusses limitations, and provides managerial implications for online marketers and directions for future studies. Copyright by MENGTIAN JIANG 2013

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CHAPTER 1 INTRODUCTION

According to IBISworld, online retailing has become one of the fastest-growing industries in the U.S., with \$219 billion revenue and 10.4% annual growth (Waterman, June 2012). According to eMarketer.com, seventy percent of US Internet users over 14 years old purchased at least one product from online retailers in 2011 (Grau, March 2012). Based on Riegner's (2007) study of over 4000 Internet users in the U.S., people spent 12% of their time online on shopping. Reviewing a product on the Internet accounts for 31% of their online content creation activities, in comparison with posting to forums (25%) or publishing a personal webpage (15%).

However, the fact that online shopping lacks sensory information, such as touch, feel and smell, prevents online shoppers from completely evaluating a product. As a result, consumers will perceive risks associated with online shopping and tend to be reluctant to purchase online. According to Nielsen (2009), 70% of consumers trust consumer opinions posted online and 70% of them also trust brand websites. According to a report from Jupiter Research, 48% of online shoppers found it important that retailers post reviews, and the number of people who think consumer review is the most important feature in a retailer's website doubled from 2005 to 2006 (Creamer, 2006). In this case, online product review, as a kind of online Word-Of-Mouth, has become an influential communication channel in e-commerce market.

Created by consumers who have previously purchased and then evaluated products based on their personal usage experience, online product reviews are considered as a major information source for consumers and marketers regarding product quality (Hu, Liu & Zhang, 2008). Online reviews can serve as online retailer's free "sales assistants" to help consumers identify the products that best match their needs (Chen & Xie, 2008). Previous research also found that high quality online product reviews can increase consumer purchase intention (Park, Lee & Han, 2007) and purchase decision (Schindler & Bickart, 2005). Riegner's (2007) study also stated that one third of Internet users' (n=1,397) recent purchase decisions were influenced by user-generated sources (defined as a blog, rating/review site, forum, discussion board, and/or social networking site). Fifty-five percent of these sources are consumer reviews or rating sites.

Many researchers found evidence for the effect of online product reviews on product sales. Chevalier and Mayzlin (2006) found that online book reviews had a significant positive impact on book sales. Chintagunta, Gopinath and Venkataraman (2010) and Liu (2006) showed that online movie reviews generate box office revenue. Godes and Mayzlin (2004) found that online word of mouth was an outcome of past sales and the driver of offline purchase decisions. Hu et al. (2008) found a positive relationship between online reviews and sales, but they also found that the impact of online reviews on sales diminished over time, based on the "age" of a product. In other words, they found the longer a product has been on the market, the smaller the impact online reviews will have on its sales.

Review Characteristics

Recent studies investigate the effect of online product reviews from the perspective of review characteristics, including review valence, review quantity, review length, review quality and review source. I now discuss each characteristic as follows:

In terms of review valence, the findings are mixed. Xia and Bechwati (2008) found that positive online reviews will increase consumers' purchase intention, while negative reviews will act in the opposite direction. Similarly, Shin (2008) found positive (negative) online buzz increases (decreases) the retail price of digital music players. Furthermore, Godes and Mayzlin (2004) showed that positive online word of mouth leads to higher ratings of TV shows aired on major networks. However on the contrary, Chen, Wu and Yoon (2004), Duan, Gu and Whinston (2008) and Liu (2006) found review valence had no significant impact on box office revenue and product sales.

In terms of review quantity, one definition is the number of online product reviews (Park, Lee & Han 2007); and the other is referred as the length of one review. Park et al. (2007) found that consumers feel more satisfied and find the review more helpful when provided with more information. But at the same time, they make less accurate or effective purchase decisions due to information overload that increases cognitive costs (Jacoby, Speller & Kohn, 1974; Keller & Staelin, 1987). Park et al. (2007) also found that the quantity of online product reviews can represent the popularity of a product, and that a larger number of good reviews will increase consumer purchase intentions. Quantity of online reviews also influences sales. Researchers found the number of online reviews is positively related to automotive sales (Chen, Fay & Wang, 2003), and box office sales (Duan, Gu & Whinston, 2008) especially in the early weeks after opening (Liu, 2006). Besides review quantity, Pan and Zhang (2011) found that review length, another dimension of quantity, has positive effects on review helpfulness, as a long review is perceived as having more information and higher perceived quality.

For review quality, previous studies found a positive impact of review quality on attitude towards the product. Consumers are likely to have a more favorable attitude towards a product when the product-related information has a high quality argument rather than a low quality one (Petty & Cacioppo, 1984; Petty, Cacioppo & Schumann, 1983). Keller and Staelin (1987) found word-of-mouth that consists of understandable and fact-supported arguments are more persuasive than reviews expressing subjective feelings and emotional comments. Kim and Song (2010) also found higher quality product reviews have positive effects on the trust of the shopping mall and that trust has positive effects on shopping intention.

For review source, previous studies extensively examine the characteristics of the reviewers, such as reviewer quality, reviewer exposure, reviewer expertise and reviewer identity disclosure. Hu, Liu and Zhang (2008) stated that consumers are likely to consider reviewer credibility when reading online reviews. Specifically, reviews of higher quality reviewers or higher exposure reviewers are perceived as credible and trustworthy as these reviewers have the necessary expertise to evaluate product quality, and are also less likely to be "paid" by the product manufacturer. In addition, many researchers examined the role of reviewer expertise. Vermeulen and Seegers (2009) found that online expert reviews are more persuasive than online non-expert reviews on hotel consideration, while attitudes towards the hotel do not change much between online expert reviews and non-expert reviews. Similarly, Senecal and Nantel (2004) found non-expert reviewers are perceived as having less expertise and having less trustworthy than expert reviewers. Moreover, reviewers who disclose his/her identity-descriptive information (such as real name, geographic location) in the reviews are found to be more helpful and subsequently generate more online product sales (Forman, Ghose & Wiesenfeld, 2008).

Review Modality

As e-retailers recognize the importance of online product reviews on product sales and encourage users of their products to post personal product evaluations on their webpages, the information format used in the review and the way online reviews are presented on the website, in other words, *review modality*, is developing and growing. Chau, Au and Tam (2000) identified two main types of information used in product presentation: textual information, which uses words to describe product features and user experience, and visual information, which uses an image, picture, movement or animation to display products. Based on Chau et al.'s (2000) conclusion and observation, the most common modalities of online reviews can be summarized as follows:

1) Text-only review. An example is a product review of bed rest pillow on Target.com, as shown in Figure 1;

2) Video review, which is often found on video site such as YouTube.com. An example is a product review of Sonic Bomb Alarm Clock, as shown in: <u>http://youtu.be/LW9IQou5xkA;</u>

3) Written review with picture. An example is a product review of Anthropologie top, as shown in Figure 2;

4) Written review with video. An example is a review of Conair Spin Air Rotating Styler on Amazon.com, as shown in Figure 3;

5) Written review with both picture and video. An example is an iPhone 4 review on Engadeget.com, as shown in: <u>http://www.engadget.com/2010/06/22/iphone-4-review/</u>.

Figure 1 Example of Text-only Review

I tend to stay in my room a lot and the way my bed is positioned I use it as a "couch" during the day. This little "pillow" is a great addition to my bed. Initially, I was going to purchase a decorative pillow to add to my room's decor but I rather have a "comfy pillow" rather than a pretty pillow it cost the same

reply helpful? 🖒 (9) 🖓 (0)

flag as inappropriate

For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this thesis.

Figure 2 Example of Text with Picture Review

Unexpected surprise for a tunic! / October 28, 2012

I was drawn to this tunic at the store with the whimsical print, but wasn't expecting to love it...but after trying it on, it's on my wishlist! The size o fit was TTS. The neckline is very flattering and the silk material provides a comfortable fit. This tunic will go well with skinny jeans or leggings and would even look cute belted with a skinny belt.



0

Was this review helpful to you?

Figure 3 Example of Text with Video Review

2

688 of 716 people found the following review helpful

**** My head is spinning!, March 30, 2011

By Debbie Lee Wesselmann (the Lehigh Valley, PA) - See all my reviews

This review is from: Infinitipro Spin Air Rotating Styler, colors may vary. (Misc.)

Customer review from the Amazon Vine Program (What's this?)



Length:: 3:43 Mins

The Infinitipro Spin Air styler is essentially a large brush with a low-power hair-dryer in its center. In this video, I demonstrate the spinning action and how it works. For chin-length or longer hair, this is probably a five-star product, but the 2-inch brush is simply too large for short hair. If this product had interchangeable brush heads, it would be perfect. I give it 3 stars for short hair, but 5 stars overall for how it works.

UPDATE: I now have a slightly longer hair style. Although my

Previous studies on online product presentation modality found either text with picture or text with picture information has stronger effects on facilitating message recall and generating positive attitudes towards the product than text-only information (Liu & Stout, 1987). Visual information is also found to decrease perceived risk (Park, Lennon & Stoel, 2005), as well as to positively influence consumer's mood and purchase intention (Then & DeLong, 1999; Kim & Lennon, 2000; Park et al., 2005). However, little is known about the effect of different online review modalities on consumer attitudes and behavior. More specifically, the effect of reviews that are presented in verbal, nonverbal or both modalities on consumer attitudes and purchase behavior, has yet to be systematically investigated. Therefore, this study will use Dual Coding Theory and Stimulus-Organism-Response Framework to investigate the effect of three review modalities (text vs. text with picture vs. text with video) on the perceived review quality, and the impact on consumers' attitude towards the product and the e-retailer, and purchase intention.

This study contributes to the growing electronic Word-of-Mouth (e-WOM) literature by investigating how online product reviews influence consumer attitudes and behavior from a completely new perspective: review modality. This study also aims to provide insights for online retailers and marketers on how to modify the website's consumer review section to take advantage of review modality, in order to increase sales and build a positive brand relationship between e-retailers and online shoppers.

The paper is organized as follows. Chapter 1 summarizes the related literature. Chapter 2 describes the theoretical framework and develops research hypotheses. Chapter 3 explains the methodology. Chapter 4 provides data analysis and results. Chapter 5 discusses the findings. Chapter 6 concludes academic implications, managerial implications, limitations and future research directions.

CHAPTER 2 LITERATURE REVIEW

This chapter discusses two theories used in this study: Dual Coding Theory and Stimulus – Organism – Response framework. Chapter 2 reviews the previous literature, and introduces hypothesis development and theoretical framework.

Dual Coding Theory (DCT)

Paivio's Dual Coding Theory (1986) proposed that people code information through verbal and nonverbal systems. The verbal system (also called "logogens") specializes in processing and storing linguistic information, such as words or texts, while the visual system (also called "imagens") specializes in processing and storing visual information, such as images, graphs or icons.

There are three types of coding: (1) *Associative Coding* means that people directly code verbal or non-verbal information and generate a verbal or non-verbal response (i.e. memory) without activating the other system. For example, we can recognize an iPhone with its Apple logo and home button design without verbal descriptions.

(2) *Representative coding* means that people receive both verbal and nonverbal information and process and store verbal information and visual images simultaneously in their memory. For example, when people are provided with a review containing both text and pictorial information, they will better evaluate the products by reading the text to understand the features as well as by seeing the demonstration of the products at the same time.

(3) *Referential Coding* means that people receive either verbal or nonverbal stimuli, but activate a mental presentation of the missing component in their working memory based on the previous long-term memory. Therefore they process and store verbal (mental presentation of verbal) information and mental presentation of non-verbal (non-verbal) simultaneously. For

example, if people are only presented with a text review that evaluates a product, for instance, "the screen definition is low", they may generate an image of unclear or blurry pictures shown in the screen in their mind to understand and remember the review.

Stimulus-Organism-Response (S-O-R) Framework

Mehrabian and Russell's Stimulus-Organism-Response (S-O-R) framework (1974) proposed that atmospheric cues influence one's response through the intervening effects of affective and cognitive states. To be specific, when an individual is exposed to environmental cues (Stimuli), his/her internal states (Organism), including both cognitive states (such as perceptions of the cues) and affective states (such as attitudes toward the cues), will be influenced, and this will in turn influence approach/avoidance behavior (Response), such as purchase intention.

S-O-R framework was first applied to an online shopping environment by Eroglu, Machleit and Davis (2001). Eroglu et al. (2001) created a model of online consumers' responses to online environmental cues and found that online store atmosphere cues (e.g. colors, graphs, layout and design) affect consumers' cognitive and affective states, which then lead to approach or avoidance behavior. They also found that two personality characteristics, namely, atmospheric responsiveness and involvement, moderate the relationship between online environmental cues and shoppers' affective and cognitive reactions. But site atmosphere only has significant effects on internal states in the low-involvement condition and in the high-atmosphere responsiveness condition. In other words, only low involvement online shoppers, who were simply asked to browse and look around the site, rather than high involvement online shoppers, who were asked to use \$100 gift card to make a purchase at the store, perceived pleasure from the store atmosphere. High atmospheric response online shoppers, who "value the environmental quality of a shopping encounter"(p.144), perceive pleasure from the store atmosphere, instead of low atmospheric response online shoppers, who "do not have heightened sensitivity to their surroundings"(p.144) (Eroglu, Machleit & Davis, 2003).

Based on DCT and S-O-R framework, this study integrates these two theoretical frameworks to examine not only how online review modality (S) influences consumers' perceived review quality, attitude towards the product and attitude towards the e-Retailer (O), and purchase intention (R); but also how consumers' perceived review quality, attitude towards the product, attitude towards the e-Retailer (O) influences purchase intention (R). The Dual Coding Theory explains how different review modalities (text vs. text with picture vs. text with video) influence consumers' internal states. We also posit that review modality × review valence has an interaction effect on attitude towards the product or the e-Retailer (See Figure 4).



Hypothesis Development

According to S-O-R framework, online shoppers' response to visual or verbal cues of a review influences their cognitive state, which refers to "everything that goes into the consumers' mind concerning the acquisition, processing, retention and retrieval of information" (Eroglu et al.,

2001, pp.181), and also influences their affective states. In this study, I regard people's perceptions of review quality, which "can be thought of as the information's inherent usefulness to consumers in assessing the utility of an alternative" (Keller & Staelin, 1987, p200) as a cognitive state; and I regard attitude towards the product and attitude towards the e-Retailer as people's affective states.

DCT argues that information presented in both verbal and visual form will generate a deeper processing of information, leading to a greater recall/recognition and better problem-solving performance than verbal information due to two reasons. First, the combination of visual and verbal information is more effective than verbal-only review, as the latter needs to occupy working memory to imagine the mental presentation of visual information. Second, enhanced visual information, such as 3D display and virtual reality, can supplement sensory information in the online shopping environment, which helps reduce consumers' perceived risk and uncertainty about a product, and enhances their ability to process product information and make purchase decisions.

Liu and Stout (1987) found visual information was more effective than text-only information for facilitating not only message recall, but also positive attitudes toward the product. Visual information is also found to positively influence consumer's mood by reducing perceived risk (Park, Lennon & Stoel, 2005). Along with this logic, people may perceive a review as having higher quality and generate more positive attitudes towards a product and an e-Retailer, when provided with both verbal and visual information.

However, DCT also suggests that when a review requires multiple modes of visual attention (e.g. image of product and text evaluating the product that are provided), people may feel overwhelmed by the simultaneous coding of text and visual cues, as they have to pay attention to two images in a nonverbal system. A video review with additional auditory information (i.e. narrative), may require more attention and thus more memory space to process and code information than a picture review. In other words, text reviews with visual information may lead to information overload, which will not only "impair overall performance of the information" (Dow, 2008, p8), in other words, impair people's perception of review quality, but also "lessen recall ability and reduce performance on subsequent recall tasks" (Dow, 2008, p8). Therefore people may not find the review helpful with their shopping task and then generate less favorable attitudes toward either the product or the e-Retailer.

Due to the contradicting explanations regarding the relationship between review modality and perceived review quality addressed above, I pose the following research questions:

RQ1. Which review modality will generate the highest perceived review quality?

RQ2. Which review modality will generate the most favorable attitude towards the product?

RQ3. Which review modality will generate the most favorable attitude towards the e-Retailer?

As online reviews have negative, neutral or positive tones, it is necessary to take into account the moderating effect of review valence on the relationship between review modality and attitude.

Previous studies found review valence positively influences attitude towards the brand. Lee, Rodgers and Kim's (2009) study supported the negativity and extremity effect of review valence on attitudes towards the brand. That is to say, positive reviews increased attitudes towards the brand and negative reviews decreased attitudes toward the brand. Moreover, extremely negative reviews had a stronger influence on attitudes towards the brand than either moderately negative reviews or extremely positive product reviews. Therefore it can be assumed that review valence influences consumer's attitudes towards the product.

In contrast, previous studies do not find the same relationship between review valence and attitudes towards e-Retailer. Lee, Rodgers and Kim (2009) proposed an interesting finding: For reviews posted on retailer's website, the mere presence of the review, no matter whether it is positive or negative, increases attitudes towards the retailer. In other words, although an online shopper may not purchase the product after reading a negative review, negative reviews do not "spill over" to the website evaluations. Online shoppers may develop a positive attitude towards the e-retailer and visit this website again in the future as they perceive the e-retailer who provides negative reviews as honest and trustworthy. This is also consistent with Detlor, Sproule and Gupta's finding that 58% of subjects in a search task perceived a retailer's website as helpful merely due to the presence of product reviews (2003). Therefore I propose (See Figure 4 for hypothesized relationship):

H1. Effect of review valence is stronger for attitude towards the product than attitude towards the e-Retailer.

Since RQ1-3 suggest that review modality has an effect on attitude and H1 states that review valence have different effects on attitude based on whether it is attitude towards the product or attitude towards the e-Retailer, and due to the lack of current literature, I raise the following question:

RQ4. Does the interaction between review valence and review modality have an effect on attitude target?

The S-O-R framework suggests that cognitive and affective states will lead to behavioral responses. Zeithaml, Berry and Parasuraman (1996) found if customers have positive (negative) perceptions of service quality, they generate positive (negative) behavioral intention such as "doing more (less) business with company". Park and Kim (2003) found that product and service information quality positively influences consumers' purchasing behavior through site commitment. Furthermore, previous findings identify a positive relationship between review quality and online purchasing intention (Park, Lee & Han, 2007; Kim & Song, 2010; Lin, Lee & Horng, 2011). For an online shopping mall, consumers are more willing to make a purchase when the online review quality is high, as high quality reviews are more understandable and more believable with sufficient reasons and facts than low quality reviews (Park et al., 2007; Lin, et al., 2011). Therefore, I propose a positive relationship between perceived review quality with purchase intention (See Figure 4 for hypothesized relationship).

H2. High quality reviews will generate higher purchase intention than low quality reviews.

Shim, Eastlick, Lotz and Warrington (2001) found a positive attitude towards Internet shopping increases consumers' Internet purchasing intentions. Athanassopoulo, Gounaris and Stathakopoulos (2001) found when bank consumers perceived high consumer satisfaction, they engaged in favorable behavioral responses, such as staying with current service provider. Park et al. (2005) found when consumers have positive feelings towards a product or a retailer, they are more likely to purchase the product. Thus, I propose a positive relationship between attitudes with purchase intention (See Figure 4 for hypothesized relationship):

H3. Attitude towards the product is positively related to purchase intention.

H4. Attitude towards the e-retailer is positively related to purchase intention.

CHAPTER 3 METHODS

Product Selection

An electronic product, specifically, a tablet PC is chosen for this study for the following reasons. First, according to IBISworld (Waterman, June 2012), the electronics product category is the largest group sold online, and thus is most common and frequently-searched product online, which can increase the mundane realism of this study. Second, electronic products are high-involvement products which require consumers to search and process information before purchase. In addition, as newly introduced to the mass market in 2010 (iPad), people are not very familiar with the features of Tablet PC, which minimizes the amount of existing personal product knowledge and makes subjects focus on the information provided to understand the product. This can increase experimental realism.

Pretest

A pretest was used to identify the appropriate product model, brand name, and website name to use in this study. The pretest employed an online survey of 58 students in a mid-western university.

A list of current 10.1 inch Android tablets with a price range of \$300~ \$500 was collected from Bestbuy.com, Newegg.com and Amazon.com. A total of 10 brands were used for the pretest, including Acer, ARCHOS, ASUS, COBY, DELL, Lenovo, Samsung, SONY, Toshiba, ViewSonic (See Appendix A). Instead of using multiple operating systems such as Apple's iOS, HP's WebOS and Blackberry's RIM, only one operating system, Android, was used to generate the list, in order to avoid people's bias in favor of one specific operating system. In addition, Android is chosen because it is currently the second largest market player and has a variety of brands and product models from which choose from. According to ABI Research's report, Android tablet has risen to 41.3% share in the third quarter of 2012, up 29.1% from the same period of last year, while the market leader, Apple's iPad, has lost 14% market share to 56.7% (ABI Research, 2012).

We created a list of 10 Android tablet brands and models, 8 fictitious tablet brands and 7 fictitious website names. Then 58 participants were asked to rank six most familiar tablet brands and models, three most favorable brand names and three most favorable website names (See Appendix A). As table 1 shows, XtraNote and <u>www.tabletstore.com</u> had the highest ranking score. Therefore this study uses *XtraNote* as the tablet's fictitious brand name, and <u>www.tabletstore.com</u> as the e-Retailer's website name.

For the product model, this study used real products that have moderate brand familiarity so as to avoid previous brand knowledge, as well as to guarantee that enough WOM messages could be collected from the Internet for the experimental design. As Table 1 shows, ACER, Toshiba and ASUS were ranked as the moderately familiar brands. According to Table 2, 79.3% of participants ranked ACER in their top 7 most familiar brands, while 74.1% ranked Toshiba and only 53.3% ranked ASUS in their top 7 most familiar brands. Furthermore, 13 participants ranked ACER and 15 ranked Toshiba in their top 3 most familiar brands, while 12 participants ranked ASUS in their top 3 most familiar brands. Therefore, ASUS tablet was chosen to use in this study as it has the most moderate brand familiarity.

Table 1 Pretest Results

Do you currently own a	Item	Count	Percent
tablet?	Yes	26	44.8%
(n=58)	No	32	55.2%
How many tablets have	Item	Count	Percent
you ever owned?	1	18	69.2%
(n =26)	2	5	19.2%
	3	2	7.7%
	4	1	3.9%
	≥5	0	0
Top six most familiar	Item	Aggregate Score	Overall Rank
tablet brands and	SAMSUNG	432	1
products (n=53)	SONY	389	2
	DELL	329	3
	Lenovo	295	4
	Acer	283	5
	Toshiba	283	5
	Asus	226	7
	ViewSonic	81	8
	COBY	38	9
	ARCHOS	36	10
Top 3 most favorite	Item	Aggregate Score	Overall Rank

Top 3 most favorite	Item	Aggregate Score	Overall Rank
brand names	XtraNote	235	1
(n=55)	DreamPad	230	2
	ZEIKO	212	3
	ViewStone	142	4
	TABSONIC	139	5
	RoketTab	134	6
	Eumius	106	7
	Godigi	92	8
Top 3 most favorite	Item	Aggregate Score	Overall Rank
website names	www.tabletstore.com	256	1
(n=56)	www.tabletcity.com	237	2
	www.skybuy.com	194	3
	www.tabletpc-mall.com	111	4
	www.e-mall.com	101	5
	www.godigi.com	99	6
	www.eonlinesotre.	97	7

Statistics					
		ACER	Toshiba	ASUS	
N	Valid	46	43	34	
	Missing	12	15	24	

Table 2 Frequency Distribution of ACER, Toshiba and ASUS Ranking

		AC	ER	То	shiba	AS	SUS
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Rank	1	1	1.7	1	1.7	6	10.3
	2	5	8.6	4	6.9	5	8.6
	3	7	12.1	10	17.2	1	1.7
	4	3	5.2	5	8.6	5	8.6
5 6 7 8 9	5	9	15.5	11	19.0	5	8.6
	6	13	22.4	8	13.8	5	8.6
	7	8	13.8	4	6.9	4	6.9
	8	0	0	0	0	1	1.7
	9	0	0	0	0	2	3.4
	10	0	0	0	0	0	0
	Total	46	79.3	43	74.1	34	58.4

Pilot Study

Experiment design

We used 3 (review modality: text vs. text with picture vs. text with video) \times 2 (review valence: positive vs. negative) post-test only between-groups experimental design for this study. Six webpages for XtraNote sold on www.tabletstore.com with consumer reviews were created. Participants were randomly assigned into one of six experimental treatments with a url leading to one of the six treatments.

Data Collection and Procedures

A pilot study was conducted in a mid-western city with 45 participants, through a convenience and snowball sampling procedure. The pilot study participants were mostly females (55.6%), and their age ranged from 21 to 60 (means = 28, SD=9.33). Nine participants were assigned to the positive text-only review experimental condition; seven participants were assigned to the negative text-only review experimental condition; seven participants were assigned to the positive text with picture review experimental condition; nine participants were assigned to the negative text with picture review experimental condition; seven participants were assigned to the negative text with picture review experimental condition; seven participants were assigned to the negative text with video review experimental condition; six participants were assigned to the positive text with video review experimental condition; six participants were assigned to the negative text with video review experimental condition.

Before beginning the experiment, participants were asked to read and sign a consent form. Then four multiple-choice screening questions were used to make sure the participants were online shoppers, defined by eMarketer.com as people who "browsed, researched or compared products or service online" (Grau, March 2012), and/or online buyers, who purchased a product or service online (Grau, March 2012). Participants who had no online shopping experiences were excluded from the sample.

Next, participants received a task regarding online shopping: "Imagine that you have been given a \$400 gift card to an online shopping mall, www.tabletstore.com. You decide to purchase a tablet computer with this gift card. Below is a screenshot of a new brand of tablet called XtraNote. Take your time browsing the information, and decide whether you will buy this product with the gift card by answering the following questions." After reading the instruction, participants were shown a screenshot of XtraNote tablet sold on www.tabletstore.com with different consumer review modalities (See Appendix B). The screenshot of the webpage was designed to mimic the real-life retailer webpage. The upper half of screenshot consists of the website's name, "Tablet Store", customer service telephone number, shopping cart, menus bars, search box, and product information of XtraNote tablet. Regarding product information, the left side of the webpage shows several product pictures; the middle part of the webpage shows the product name, model, stock condition, average consumer review rating (either 2-star or 4-star rating), the number of consumer reviews, and product features; the right side of the webpage shows the retail price, quantity, an "add to cart" button and three lines of e-retailer's guarantees.

The lower half of the screen shows the customer review section. A chart in the left shows the distribution of 16 review ratings. There are mostly two-star reviews for the negative review and mostly four-star reviews for the positive review. Next to the chart, the average consumer rating, either 2.1 out of 5 for the negative review, or 3.8 out of 5 for the positive review, is displayed. One complete customer review, which has three pros and threes cons and is ranked as the most helpful, is displayed below. The hyperlinks of "previous review" and "next review" are displayed above the detailed customer review, indicating that there are more available reviews. The

distribution bar and hyperlink are designed to minimize the influence of inadequate review quantity on participants' judgment.

The review content consists of title, star rating, author name, publish time, an introduction, three pros and three cons of the product (See Appendix C), and a conclusion of the review. The author name, publish time, and three pros and three cons are kept constant in the six treatments. But the review title, star rating, introduction and conclusion differ based on the review valence. And pictures or video were inserted based on different types of review modality. The video review makes the exact same comments about the product as the text review. And the pictures used in the text with picture review are the screenshots from the video review (See Table 3).

In addition, the participant's review-related behavior (reading or posting reviews), tablet ownership, product knowledge as well as demographic questions including age, gender, race, education, household income, employment status were asked in the end of the questionnaire (See Appendix D).

Text Review × Positive Review	Text Review × Negative Review
Great Tablet 🗙 🗙 🛧 📩	Not that good
Posted by Tom on 09/01/2012	Posted by Tom on 09/01/2012
I bought this tablet last week. I have now had it	I bought this tablet last week. I have now had it
for about two weeks, and I absolutely love it.	for about two weeks, and I have a couple of
	complaints about it. But first the good things.
<insert and="" cons="" here="" pros="" three=""></insert>	<insert and="" cons="" here="" pros="" three=""></insert>
Overall this is a great device which serves its	Overall this tablet is not that good. I am very
purpose. Because of the cons I can't give this	disappointed due to the cons, thus I give this
tablet 5 stars, instead it gets 4.	tablet 2 stars.
Text with Picture Review × Positive Review	Text with Picture Review × Negative Review
Great Tablet 🙁 📩 📩 📩	Not that good
Posted by Tom on 09/01/2012	Posted by Tom on 09/01/2012
I bought this tablet last week. I have now had it	I bought this tablet last week. I have now had it
for about two weeks, and I absolutely love it.	for about two weeks, and I have a couple of
	complaints about it. But first the good things.
<insert and="" cons="" here="" pros="" three=""></insert>	<insert and="" cons="" here="" pros="" three=""></insert>
<insert on="" pictures="" right="" the=""></insert>	<insert on="" pictures="" right="" the=""></insert>
Overall this is a great device which serves its	Overall this tablet is not that good. I am very
purpose. Because of the cons I can't give this	disappointed due to the cons, thus I give this
tablet 5 stars, instead it gets 4.	tablet 2 stars.
Text with Video Review × Positive Review	Text with Video Review × Negative Review
Great Tablet	Not that good
Posted by Tom on 09/01/2012	Posted by Tom on 09/01/2012
I bought this tablet last week. I have now had it	I bought this tablet last week. I have now had it
for about two weeks, and I absolutely love it.	for about two weeks, and I have a couple of complaints about it. But first the good things
	complaints about it. But first the good unligs.
Insert has points of three pros and some	Insort low points of three prog and song
<inserv and="" cons<="" key="" of="" points="" pros="" td="" three=""><td> Insert key points of three pros and constants </td></inserv>	 Insert key points of three pros and constants
The detailed pros and cons will be	The detailed pros and cons will be
demonstrated in the video, in the form of	demonstrated in the video, in the form of
narrative.	narrative.
http://youtu.be/57vrHRBC5Aw	http://youtu.be/oE3bp1XuOMU
Overall this is a great device which serves its	Overall this tablet is not that good. I am very
purpose. Because of the cons I can't give this	disappointed due to the cons, thus I give this
tablet 5 stars, instead it gets 4.	tablet 2 stars.

Figure 5 Six Different Review Contents

See Appendix C for the complete three pros and three cons.

CHAPTER 4 RESULTS

Pilot Study Results

Measures: Dependent Variables

To measure perceived review quality, we used six items adopted and revised from Blanco, Sarasa and Sanclemente's five-point Likert scale (2010). Items included are "The review has sufficient information that I expect it to have." "The review provides complete information about the product." "The review provides detailed information about the product." "The review provides accurate information about the product." "The review provides timely information about the product." "The review provides reliable information about the product." The reported reliability for this scale was .83, and none of the items needed to be deleted. We used factor analysis to examine construct validity. Only one component was extracted for this variable. The KMO measure's value was .82 , and Bartlett's test was significant.

Attitude towards the product was measured with a six-item, five-point semantic differential scale including items such as "good/bad", "unappealing/appealing", "unattractive-attractive", "boring-interesting" and "dislike-like", developed by Bruner (1998). The reported reliability for this scale was .87. We used factor analysis to examine construct validity. Only one component was extracted. The KMO measure's value was .77, and Bartlett's test's was significant.

Attitude towards the e-retailer was measured with a three-item, five-point semantic differential scale including items such as "good/bad", "unfavorable/favorable" and "dislike-like" (Rose, Meuter & Curran, 2005), with a reported reliability of .91. The KMO measure's value was .82, and Bartlett's test was significant.

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Purchase intention is measured by using a four-item seven-point Likert-type scale. One original question is created for the task: "How likely is it that you will buy this tablet from this website with the \$400 gift card?" The other three items were adopted and revised from Kim and Lennon's scale (2000) with a reported reliability of .90, including "How likely is it that you will buy this tablet you viewed today in the next 12 months?" "How likely is it that you will shop for this tablet online when you buy a tablet in the upcoming year?" "How likely will you buy the tablet seen in this website for yourself in the upcoming year?" The KMO measure's value was .68, and Bartlett's test was significant.

Manipulation Checks: Independent Variables

Participants were asked to identify the review valence, by rating on a five-point likert-style item: "The review I saw on the webpage is: 1: Negative ~ 5: Positive." Independent Sample t-test was used to examine whether the manipulation of review valence was successful. The results showed that there was a significant difference in review valence (t(43) = 1.50, p <.05). Those in positive review condition (m=3.52, SD=1.04) rated the review with higher scores than those in negative review condition (m=2.59, SD=1.30). Therefore, the manipulation of review valence was successful.

Review modality was assessed by using an one-item multiple-choice question: "The review I saw on the webpage includes Text/Picture/Video (Check all that apply to you)." Chi-Square test was used to examine whether review modality was successfully manipulated in this study. Results suggested no significant difference was observed across groups in review modality (χ 2 (2,

(45) = 4.62, p >.05), which indicates that participants of the pilot study did not correctly identify review modality.

To find out the reasons why participants were not able to correctly identify review modality, we interviewed five participants and reached data saturation. Participants reported that they either paid little attention to the review, or recalled the product picture in the upper left of the webpage as a picture review by mistake. Due to the existence of product photo, many participants recalled the text only review as the text with picture review, and recalled the text with video review as the text with picture and video review. To correct this problem, the product picture needed to be eliminated, and the review section in the online survey needed to be made more prominent for the main study (See Appendix B).

Main Study Results

Experiment design and procedures

The main study used the same experimental design and procedure as the pilot study, except it incorporated two improvements. First, the product picture was eliminated in the main study (See Appendix B). Second, the display of the online survey was redesigned. Participants first saw a page of the overall webpage screenshot. And on the next page, they saw the screenshot of the review section, and the pictures (or videos) in the review section when the participants were assigned to text with picture condition (or text with video condition), in order to make participants pay more attention to the stimuli.

Data collection

The main study used a broader sample rather than the pilot study student sample. Participants were recruited through two ways. First, a combination of snowball sampling and convenience sampling was used to recruit participants for the main study. On one hand, we asked graduate students to complete the survey and to distribute the survey to their acquaintances. On the other hand, we recruited undergraduate students by offering extra credit or participation points. Each participant was given a link which randomly assigned him/her to one of the six treatments.

Second, a data collection company, *Cint*, was hired to collect a nationally representative sample through an online panel. This approach was specified to target people who are above 30 years old and are non-students, in order to avoid recruiting young people or student sample subjects again.

In both approaches, participants were given a url which randomly assigned them to one of the six treatments. Then they were asked to answer four screening questions at the beginning and only online shoppers, who "browsed, researched or compared products or services online but have not necessarily bought online", or online buyers, who "made at least one purchase online in the past year" (Grau, March 2012) were included in the sample.

Sample profile

A total of 349 responses were collected for the main study. Two participants reported they had no previous experience of browsing and purchasing either products or service online. As a result, these two responses were eliminated from the sample, which left a final sample of 347.

Fifty-two participants were in the positive text-only review experimental condition; Forty-six participants were in the negative text-only review experimental condition; Forty-seven participants were in the positive text with picture review experimental condition; Fifty participants were in the negative text with picture review experimental condition; Seventy-eight participants were in the positive text with video review experimental condition. The unequal sample size for each cell was due to the fact that some participants dropped out in the middle of the survey and that we over-collected data for the text with video review condition. Since the data set was unbalanced with no missing cells, Type III Sums of Squares are used to measure the overall significance test. Type I and Type II Sums of Squares are not used because they are commonly used for a balanced cell and are less powerful and inappropriate to test the interaction effect. What's more, Type IV Sums of Squares is not used because the data set has no missing cells. As a result, the data analysis is based on Type III Sums of Squares (Shaw and Mitchell-Olds, 1993; IBM Corporation, 2013).

Females comprised 61.7% of the sample (n=214). The participants' age ranged from 20 to 79 (means= 30, SD=14.92). The majority of the participants are Caucasian (70%, n=243). 92% of the participants have attended college. 59% of the participants have a household income of over \$50,000. 49% are employed either full time or part time, 35.4% are students who are not working for wages, 7.2% are retired and 6.6% are unemployed (See Table 3).

Item	Frequency	Percentage	-
Gender			
Female	214	61.7%	
Male	133	38.3%	
Total	347	100%	
Age Group			
20-24	221	64.4%	
25-35	51	14.9%	
36-45	17	5.0%	

Table 3 Demographic Characteristics of Main Study Sample
46-55	20	5.8%
56-65	9	2.6%
66-79	25	7.3%
Total	343	100%

Table 3 (Cont'd)

Item	Frequency	Percentage
Ethnicity	- -	
African-American	21	6.1%
Asian	70	20.2%
Caucasian	243	70%
Hispanic	4	1.2%
Multiracial	3	0.9%
Other	6	1.7%
Total	347	100%
Education		
High school/GED	27	7 8%
Some college	1/19	1.070 17 9%
2 year college degree	28	×2.9%
A year college degree	Q1	26.2%
A year concer degree Master's degree)1 /2	12 1%
Naster's degree	+2 6	1 7%
Professional degree	3	Q%
Prefer not to disclose	1	3%
Total	347	100%
Income		
Under \$10,000	13	3.7%
\$10,000 to \$24,999	29	8.4%
\$25,000 to \$49,999	45	13%
\$50,000 to \$74,999	62	17.9%
\$75,000 to \$99,999	54	15.6%
\$100,000 or more	89	25.6%
Prefer not to disclose	55	15.9%
Total	347	100%
Employment		
Student, not working for wages	123	35.4%
Employed full time	53	15.3%
Employed part time	117	33.7%
Retired	25	7.2%
Unemployed	23	6.6%
Disabled, not working outside	3	.9%

Homemaker, not employed outside	3	.9%
Total	347	100%

The main study also collected the participants' online shopping, purchasing and reviewing behavior. Among the 347 participants, 53% have browsed, researched or compared more than 20 products online and 99% of them have purchased at least one product in the past year. 84% of them have purchased at least one service in the past year. Most of them read more than 5 consumer reviews about a product (76%) or service (62%) posted on a retailer's webpage before purchase in the past year. However, less than half have posted reviews about a product (49%) or service (39%) online in the past year (See Table 14).

Furthermore, 121 participants (34.9%) reported they currently own a tablet, 77.5% of which own one tablet and 19.2% of which own two tablets. 68.3% of participants reported they have average knowledge of tablet, while 16.7% reported they are savvy tablet users and 15% reported they know little about tablet (See Table 15).

Construct Reliability & Validity

The main study used the same measures as the pilot study. The reliability and construct validity are reported in Table 4.

We used Cronbach's alpha to determine the internal reliability of each measure. The reported reliabilities were .81 for perceived review quality, .90 for attitude towards the product, .90 for attitude towards the e-Retailer, .91 for purchase intention. All of reliabilities are greater than .8, which indicates an excellent internal consistency (Landis & Koch, 1977).

We used a principal components factor Analysis with varimax rotation to examine construct validity. The items loaded on the appropriate factors. The KMO measure's value of each measure was greater than .7, and Bartlett's test was significant for each variable: Perceived review quality (KMO=.83; Barlett's test $\chi 2(15) = 620.5$, p<.001), Attitude towards the product (KMO=.85; Barlett's test $\chi 2(10) = 1068.2$, p<.001), Attitude towards the e-Retailer (KMO=.72; Barlett's test $\chi 2(3) = 685.1$, p<.001), Purchase Intention (KMO=.83; Barlett's test $\chi 2(6) = 973.4$, p<.001). According to Hutcheson and Sofroniou (1999), the construct validity is good if the KMO value is over 0.60. Therefore the validity of the measures in this study is very good.

Construct	Scale	Source	Reliability	KMO value	Factor 1	Factor 2	Factor 3	Factor 4
Perceived Review Quality1. The review has the sufficientinformation that I expect it to have.2. The review provides completeinformation about the product.3. The review provides detailedinformation about the product.4. The review provides accurateinformation about the product.5. The review provides timely informationabout the product.6. The review provides reliableinformation about the product.	Five-point Likert-type scale (1-Strongly disagree, 5- Strongly agree)	Blanco, Sarasa and Sanclemente (2010)	α =.814	.828***			0.73 0.72 0.69 0.70 0.62 0.73	
 Attitude towards the product 1. bad-good 2. unappealing-appealing 3. unattractive-attractive 4. boring-interesting 5. dislike-like 	Five-point semantic differential scale	Bruner (1998) Rose	α = .900	.849***	0.73 0.82 0.76 0.77 0.77			
 bad –good unfavorable - favorable dislike – like 	semantic differential scale	Meuter and Curran (2005)	α = .900	.722***				0.80 0.85 0.81

Table 4 Reliability and Validity of Main Study Measures

Table 4	(Cont'd)
---------	----------

Purchase Intention						
1. How likely is it that you will buy this						
tablet from this website with the \$400 gift					0.77	
card?						
2. How likely is it that you will buy the	Five-point	Kim and				
tablet you viewed today in the next 12	Likert-type	Lennon			0.86	
months?	scale(1- very	(2000) and	α = .911	.829***		
3. How likely is it that you will shop for	unlikely, 5 -	one original				
this tablet online when you buy tablet in	very likely)	question.			0.84	
the upcoming year?						
4. How likely will you buy the tablet seen						
in this website for yourself in the					0.88	
upcoming year?						

*** p <.001 for Bartlett's Test of Sphericity Significance test

Manipulation Checks

We used Independent Sample t-tests to examine whether the manipulation of review valence was successful. The results showed that there was a significant difference in review valence, t(345) = 11.55, p < .001. Those in positive review condition (m=3.69, SD=.89) rated the review with higher scores than those in negative review condition (m=2.50, SD=1.05). Therefore, review valence was successfully manipulated (See Table 5).

					Std.			
				Std.	Error			
	ReviewValence	Ν	Mean	Deviation	Mean	t	df	
The review I saw on	Positive	177	3.69	.878	.066	11.553***	345	
the webpage is	Negative	170	2.50	1.045	.080			
*** <i>p</i> <.001								

Table 5 Independent Sample t-test Results

We used cross-tab analysis and Chi-Square test to examine whether review modality was successfully manipulated. The results showed that there was a significantly strong association between the review modality and what review modality people saw on the webpage (χ^2 (6, 347) = 249.06, p<0.001).

To be specific, Table 6 shows that 54% of participants in the text-only review condition recognized it correctly. The difference in the proportions of people who perceived the review as text-only review, text with picture review, text with video review and other modalities was significant (χ^2 (2, 98) = 67.96, p<.001). Therefore, the manipulation of text review was successful.

Seventy-four percent of participants recognized text with picture reviews correctly. The difference in proportions was significant (χ^2 (1, 98) = 75.74, p<.001). Therefore, the manipulation of text with picture review was successful.

For the text with video condition, the difference in proportions was significant (χ^2 (2, 151) = 158.85, p<.001). However, only 16% of participants recognized text with video reviews correctly. Therefore, the manipulation of text and video review was not successful. Though people reported the review modality incorrectly, they still saw the review modality they were supposed to see. It is possible that participants may remember the review modality subconsciously when completing the survey but reported it wrong in the manipulation check question. Furthermore, this study examines the actual review modality but not the perceptions of review modality. As a result, those responses were kept in the sample.

			The	The review I saw on the webpage							
				is							
				Text +	Text +	All		Chi-Square	df		
			Text	Picture	Video	other*	Total				
Review	Text	Count	53	34	1	10	98	67.959***	3		
Modality		%	54.1	34.7	1	10.2	100				
	Text +	Count	8	73	0	17	98	75.939***	2		
	Picture	%	8.2	74.5	0	17.3	100				
	Text +	Count	7	16	24	104	151	158.854***	3		
	Video	%	4.6	10.6	15.9	69	100				
Total		Count	68	123	25	131	347				

 Table 6 Chi-Square Test Results

*All other includes picture, video, picture and video, as well as text with picture and video. *** p < .001

Hypothesis Testing

A 3 (review modality) \times 2 (review valence) multivariate analysis of variance (MANOVA) was conducted to test the main effects of review modality (RQ1-3) on dependent variables and the review modality \times review valence interaction effect on attitude target (RQ4). The mean scores of review modality and review valence are the independent variables, and the mean scores of perceived review quality, attitude towards the product and attitude towards the e-Retailer are the dependent variables.

RQ1-3: Which Review modality generates the most favorable perceived review quality, attitude towards the product, attitude towards the e-Retailer?

As shown in Table 7, review modality did not have significant effects on perceived review quality (F(2, 343)=1.07, p=.34). In other words, the text review, the text with picture review and the text with video review did not significantly differ from each other in generating perceived review quality. Thus, review modality does not influence perceived review quality.

	Review Modality				Maan			
Dependent Variables	Text	Text + Picture	Text + Video	df	Square	F	Sig.	
Paragived Poview Quality	3.48	3.55	3.59	C	330	1.072	212	
Ferceived Review Quality	(.53)	(.58)	(.58)	L	.559	1.072	.545	
Attitude towards the	2.98	3.25	3.23	2 2 2 2 2 2		2 0 9 1	020	
Product	(.86)	(.87)	(.91)	L	2.030	5.901	.020	
Attitude towards the	3.17	3.40	3.45	2	2 405	2 222	041	
e-Retailer	(.90)	(.84)	(.87)	Z	2.403	3.222	.041	

 Table 7 MANOVA Results of RQ1-3

Numbers in parentheses are standard deviations.

On the other hand, review modality significantly influences attitude towards the product (F(2, 343)=3.98, p<0.05), and attitude towards the e-Retailer (F(2, 343)=3.22, p<0.05). Results in Table 8 showed that the text with video review (mean difference=.29, SD=.12, p<.05) and text

with picture review (mean difference=.27, SD=.11, p<.05) respectively generated significantly more positive attitude towards the product than the text only review, and there were no significant differences between the text with picture and text with video review (p=.98). Results in Table 8 also show that text with video review generated significantly more positive attitude towards the e-Retailer than the text only review (mean difference=.29, SD=.11, p<.05), but there were no significant differences between the text with picture and text with video review (p=.89), as well as text with picture and text review (p=.15).

(I) Review	(I) Review	Mean	Std		95% Confidence Interval		
Modality	Modality	Difference (I-J)	Error	Sig.	Lower Bound	Upper Bound	
Text	Text+Picture	2903*	.12094	.044	5750	0056	
	Text+Video	2706*	.10953	.037	5284	0127	
	Text	.2903*	.12094	.044	.0056	.5750	
Text+Picture	Text+Video	.0198	.10987	.982	2389	.2784	
Text+Video	Text	.2706*	.10953	.037	.0127	.5284	
	Text+Picture	0198	.10987	.982	2784	.2389	
Text	Text+Picture	2290	.1237	.1550	5203	.0622	
Text	Text+Video	2861*	.1121	.0300	5499	0222	
	Text	.2290	.1237	.1550	0622	.5203	
Text+Picture	Text+Video	0570	.1124	.8680	3217	.2076	
	Text	.2861*	.1121	.0300	.0222	.5499	
Text+Video	Text+Picture	.0570	.1124	.8680	2076	.3217	
	(I) Review Modality Text Text Text+Picture Text+Video Text Text+Picture Text+Video	(J) Review Modality(J) Review ModalityTextSeview ModalityTextText+Picture TextText+PictureTextText+VideoTextText+VideoTextText+VideoTextText+VideoTextTextText+PictureText+PictureText+VideoText+PictureText+VideoText+PictureTextText+PictureTextText+PictureTextText+PictureTextText+PictureTextText+PictureTextText+VideoTextText+VideoTextText+VideoTextText+VideoText	(I) Review Modality(J) Review ModalityMean Difference (I-J)TextText+Picture2903*Text+Video2706*Text+Video2706*Text+PictureTextText+Video.0198Text+Video.0198Text+Video.0198Text+Video.0198Text+Video.0198Text+Video.0198Text+Picture2290TextText+PictureText+Picture2290Text+Picture.2290Text+Picture.2290Text+Video0570Text+Video.0570	(I) Review Modality(J) Review ModalityMean Difference (I-J)Std. ErrorTextText+Picture2903*.12094Text+Text+Video2706*.10953Text+PictureText.2903*.12094Text+PictureText+Video.0198.10953Text+Video.0198.10987.10953Text+VideoText.2706*.10953Text+VideoText.2706*.10953Text+Picture0198.10987TextText+Picture.10987TextText+Video.1237Text+Picture2861*.1121Text+Picture0570.1124Text+Video.0570.1124	(I) Review ModalityMean Difference (I-J)Std. ErrorSig.TextText+Picture2903*.12094.044TextText+Video2706*.10953.037Text+PictureText.2903*.12094.044Text+Picture.2903*.12094.044Text+Picture0.0198.10953.037Text+Video.0198.10987.982Text+Video.0198.10953.037Text+Video.0198.10953.037Text+Picture0198.10953.037TextText+Picture0198.10953.037Text.10953.037.1550Text+Picture2290.1237.1550Text+Picture2861*.1121.0300Text+Picture0570.1124.8680Text+Video.0570.1124.8680	$ \begin{array}{c} \begin{tabular}{ c c c c } \label{eq:cond} \end{tabular} & \begin{tabular}{ c c c c } \label{eq:cond} \end{tabular} & \begin{tabular}{ c c c c c } \label{eq:cond} \end{tabular} & \begin{tabular}{ c c c c c c } \label{eq:cond} \end{tabular} & \begin{tabular}{ c c c c c c c } \label{eq:cond} \end{tabular} & \begin{tabular}{ c c c c c c c c } \label{eq:cond} \end{tabular} & \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	

Table 8 Mean Differences between Text, Text+Picture and Text+Video

* The mean difference is significant at the .05 level.

Therefore, the text with picture review (m=3.25, SD=.87) and text with video review (m=3.23, SD=.91) generated the most favorable attitude towards the product, and the text with video review (m=3.45, SD=.87) generated the most favorable attitude towards the e-Retailer.

H1: Effect of Review Valence on Attitudes

H1 hypothesizes that effect of review valence is stronger for attitude towards the product than attitude towards the e-Retailer.

We used a two way mixed ANOVA to test H1. The mean scores of review valance is the independent variable, and the mean scores of attitude towards the product and attitude towards the e-Retailer are the dependent variables.

The results in Table 9 showed that there is a statistically significant interaction between attitudes and review valence (F(1, 344)=13.97, p<0.001).

Dependent Variables	Df	Mean Square	F	Sig.
Attitudes	1	6.816	19.667	.000
Attitudes * Review Valence	1	4.840	13.965	.000

 Table 9 Mixed ANOVA Results of H1 (Within Subject)

To find out the interaction, we looked into the simple main effects of review valence on attitudes. According to Table 10, review valence had a significant effect on attitude towards the product (F(1,344)=27.07, p<.001). In other words, positive reviews (M=3.41, SD=.89) generated significantly more positive attitudes than negative reviews (M=2.90, SD=.82) when the attitude was targeted towards the product.

On the contrary, positive reviews did not significantly differ from negative reviews when the attitude was targeted towards the e-Retailer (F(1, 344)=2.6, p=0.108). In other words, review

valence did not influence attitude towards the e-Retailer. In addition, no matter whether the review is negative or positive, attitudes towards the e-Retailer were positive (Means > 3.0).

Dependent	Re	view Valeno	ce	Df	Mean	F	Sig.	
Variables	Mean	Negative	Positive		Square		0	
Attitude towards the Product	3.16(.89)	2.90(.82)	3.41(.89)	1	19.303	27.073	.000	
Attitude towards the e-Retailer	3.36(.88)	3.27(.84)	3.43(.90)	1	1.943	2.604	.108	

 Table 10 Mixed ANOVA Results of H1 (Between Subject)

Numbers in parentheses are standard deviations.

To sum up, the effect of review valence is much stronger for attitude towards the product than attitude towards the e-Retailer. In fact, the effect of review valence on attitude towards the e-Retailer is so weak that it does not even exist. Therefore H1 is supported.

RQ4: Does the interaction effect of review modality and review valance have an effect on attitude target?

As shown in Table 11, no statistically significant differences in the Review Modality \times Review Valance interaction effect on attitude towards the product were identified (F(2,343)=1.83, p=.162). Also, the interaction effect between review modality and review valence does not affect the attitude towards the e-Retailer (F (2,343) =2.38, p= .94). Therefore, the effects of review modality on attitude towards the product and the e-Retailer were significant for both negative and positive reviews.

Dependent Variables	Text		Text+Picture		Text+Video		Mean	F	Sig.
	NEG	POS	NEG	POS	NEG	POS	Square		8
Attitude towards the Product	2.83 (.75)	3.07 (.94)	2.98 (.83)	3.54 (.83)	2.90 (.86)	3.55 (.84)	1.30	1.83	.16
towards the e-Retailer	3.24 (.91)	3.10 (.91)	3.23 (.74)	3.57 (.91)	3.31 (.88)	3.59 (.84)	1.78	2.38	.09

Table 11 MANOVA Results of Interaction Effects

H2-4: Effects of perceived review quality, attitude towards the product and attitude towards the e-retailer on purchase intention

To test H2-4, multiple regression analysis was conducted. The mean scores of perceived review quality, attitude towards the product and attitude towards the e-retailer were used as independent variables, and the mean score of purchase intention was used as the dependent variable.

The assumptions of linearity, independence of errors, homoscedasticity, unusual points and normality of residuals were met. The independent variables explained a significant proportion of variances in purchase intention (F(3, 342) = 57.91, p < .001, adj. R² = .33). According to Table 12, attitude towards the product (β = .569, t(3, 342) = 8.63, p < .001) and attitude towards the e-retailer (β = .23, t(3,342) = 3.34, p =0.001) are statistically significantly related to purchase intention. But perceived review quality failed to significantly predict purchase intention (β = .003, t(3,342) =-.033, p =.97). Therefore, H2 is rejected while H3 and H4 are supported.

Variable	В	SE _B	β	t	
Review Quality	003	.098	002	033	
Attitude towards the Product	.569	.066	.462***	8.631	
Attitude towards the e-Retailer	.228	.068	.183***	3.335	

Table 12 Summary of Multiple Regression Analysis

***p<.001; *B*=Unstandardized regression coefficients; SE_B= standard error of the coefficient; β = standardized coefficient

Dependent variable: Purchase Intention

Independent variable: Review Quality, Attitude towards the Product, Attitude towards the e-Retailer

CHAPTER 5 DISCUSSION

The major findings that emerged from the study are described in this chapter.

First, this study found that review modality has positive effects on attitude towards the product and attitude towards the e-Retailer. This is consistent with the S-O-R framework which posits that cognitive states and affective states (organism) respond to the stimulus before they trigger a response. Also, the findings showed that text with picture review and text with video reviews (text with video reviews) can generate significantly more favorable attitudes towards the product (the e-Retailer) than text only reviews. This finding is consistent with Dual Coding Theory, which suggests people prefer to process information through both verbal and non-verbal system, and supports Liu and Stout (1987)'s finding that visual information can generate more positive attitudes towards the products. To be specific, the findings showed that both text and picture reviews and text and video reviews can generate significantly more positive attitudes toward products than text only reviews. Moreover, among the three modalities, text with video reviews generates the most favorable attitude towards the e-Retailer. However, no differences between the effects of text with picture reviews and text with video reviews were found on attitudes toward e-retailers. The possible explanation may be because participants did not distinguish text with video reviews from text with picture reviews. About 80% of participants in the text with video review situation reported the modality incorrectly, perceiving the video in the review as a picture. This finding might also be explained because participants did not perceive text with video review as having more visual information than text with picture review.

One unanticipated finding was that no significant relationship was identified between review modality and perceived review quality, which is contradictory to the prediction of DCT theory and the S-O-R framework. This finding of the current study also refutes Rieh (2002)'s content

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analysis findings that people consider visual characteristics of information, such as graphics and organization/structures, as one important criterion to judge information quality. The inconsistency may be because the participants in this study did not pay much attention to different review modalities as the manipulation check of review modality failed partially. As a result, participants who failed to recognize text with video review also failed to perceive the review as high quality. Another possible explanation may be that about 80% of participants perceived the review quality as high (>3) and therefore not enough distinct differences in the effects of review modality on review quality were identified. The mean scores of review quality were: 3.48 for text review, 3.55 for text with picture review and 3.59 for text with video review, thus the perceived review quality tends to be high. This may be because the review content used in the experiment includes a high proportion of reasonable arguments with supporting facts (i.e. three pros and three cons), which is operationally defined as high review quality by Park et al. (2007). In addition, emotional and subjective statements (i.e. "I absolutely love it.") were included in the review, which is operationally defined as low review quality by Park et al. (2007). Furthermore, Rieh (2002) suggests that people also consider using review content to evaluate review quality, in addition to using "format" (formal characteristics of a document) and "presentation" (how a document is written/presented). Therefore in this study, it is possible that the effect of review content overshadows the effect of review modality on review quality. The effect of review content is so strong that there is little wiggle room for review modality to affect review quality. Future studies should pre-test the review content and make it neutral in review quality (means = 3).

The other important finding of this study was that the attitude towards the product and attitude towards the e-Retailer lead to purchase intention, in line with the S-O-R framework that

cognitive states and affective states lead to behavior change, and with the prior research findings that attitudes are positively related with purchase intention (Zeithaml et al., 1996; Park et al., 2007; Kim & Song, 2010). However, contrary to expectations and previous published studies (Park & Kim, 2003; Park et al., 2007), the perceived review quality was not found to influence purchase intention. The possible reason is that attitudes may be mediating variables. To test for mediation, three regression equations proposed by Baron and Kenny (1986) were used. The mean score of review quality was used as IV, mean scores of attitudes toward the product and attitude towards the e-Retailer were used as mediators, and the mean score of purchase intention was used as DV. The first regression equation regresses the mediator on the IV. The results showed that review quality was found to be significantly related to attitudes towards the product $(\beta = .637, t(1,345) = 8.21, p < 0.001)$ and the e-Retailer $(\beta = .695, t(1,345) = 9.287, p < 0.001)$. The second regression equation regresses the DV on the IV. Review quality was found significantly related to purchase intention ($\beta = .518$, t(1,345) = 5.146, p<0.001). The third regression equation regresses the DV on both the IV and the mediators. The results showed that review quality did not statistically predict purchase intention ($\beta = -.003$, t(3,342) = -.033, p = .97). In sum, the results of the three regression equations suggest that attitudes are the mediating variable for the relationship between review quality and purchase intention. In other words, review quality is indirectly related to purchase intention and operates through attitudes towards the product or the e-Retailer.

The third finding of this study was that review valence has different effects on attitudes, depending on whether the attitude is targeted towards the product or towards the e-Retailer. Consistent with Xia and Bechwati (2008), Shin (2008), Godes and Mayzlin (2004)'s studies that positive reviews generate more positive results than negative reviews on purchase intention,

sales and ratings, this study shows positive reviews generate more favorable attitude towards the product than negative reviews. However, the effect of review valence disappears when the attitude is targeted toward the e-Retailer. Furthermore, this study found that attitudes toward e-Retailers remain positive no matter whether the review is positive or negative. This confirms the previous findings that the mere existence of reviews can generate an overall positive attitude towards the e-Retailer (Detlor et al., 2003; Creamer, 2006; Lee, Rodgers & Kim, 2009). This result may be explained by the fact that both negative and positive reviews help consumers to make purchase decision and therefore are perceived as an useful and important feature in the e-Retailer's website. Moreover, consumers perceive those e-Retailers that provide negative reviews as honest and trustworthy.

Finally, the study further examines the review modality \times review valence interaction effect on attitudes. The results show that the interaction between review modality and review valence had no significant effects on attitude towards the product or attitude towards the e-Retailers. This means the effect of review modality on attitude towards the product or attitude towards the video don't differ by the review valence.

The results of this study are summarized in Table 13.

Research Questions/Hypothesis	Results
RQ1: Which review modality will generate the highest perceived	No difference
review quality?	by modality
RQ2: Which review modality will generate the most favorable	Text with Picture
attitude towards the product?	& Text with Video
RQ3: Which review modality will generate the most favorable	Text with Video
attitude towards the e-Retailer?	
H1. Effect of review valence is stronger for attitude towards the	Supported
product than attitude towards the e-Retailer.	
RQ4: Does the interaction between review valence and review	No significant effects
modality have an effect on attitude target?	
H2. Reviews with high quality will generate higher purchase	Rejected
intention than review with low quality.	
H3. Attitude towards the product is positively related to purchase	Supported
intention.	
H4. Attitude towards the e-retailer is positively related to purchase	Supported
intention.	

Table 13 Summary of Main Study Findings

CHAPTER 6 CONCLUSION

Using Dual Coding Theory and Stimulus – Organism – Response Framework, this study examined the effects of review modality, review valence and the review modality \times review valence interaction effect on individual's cognitive and affective states (perceived review quality, attitude towards the product, attitude towards the e-Retailer), as well as purchase intention. A 3 (review modality) \times 2 (review valence) online experiment was conducted with 347 online buyers.

Academic Implications

Previous eWOM research investigated several characteristics of online reviews: review valence (Chen et al., 2004; Godes & Mayzlin, 2004; Liu, 2006; Duan et al., 2008; Shin, 2008; Xia & Bechwati, 2008), review quantity (Jacoby et al., 1974; Keller & Staelin, 1987; Chen, et al., 2003; Park et al., 2007), review length (Pan & Zhang, 2011), review quality (Petty & Cacioppo, 1984; Petty, Cacioppo & Schumann, 1983; Keller & Staelin, 1987; Kim & Song, 2010), and reviewer characteristics (Senecal & Nantel, 2004; Hu, et al., 2008; Forman, et al., 2008; Vermeulen & Seegers, 2009). But none of these studies have ever examined the effect of using visual elements (pictures or videos) in reviews, in other words, review modality. This study is the first research that examines and provides evidence that review modality is a critical factor that affects consumers' attitudes, and in turn influences purchase intention, which contributes to the current eWOM literature.

This study also provides an important theoretical implication for developing and testing a conceptual model of the effects of online review modality on perceived review quality, attitudes and purchase intention. Our findings reveal that review modality influences purchase intention

through the affective states (attitude towards the product and attitude towards the e-Retailer), instead of cognitive states (perceived review quality). The use of rich media, such as picture and video, in the review does not increase people's purchase intention by increasing perception of the review quality. It is the positive attitude towards the product and the e-Retailer generated by richer media reviews that leads to higher purchase intention.

In addition, this study generates some interesting unexpected results regarding the effect of perceived review quality, which contradicts previous findings that perceived review quality is positively related with purchase intention (Zeithaml et al., 1996; Park & Kim, 2003; Park et al., 2007; Kim & Song, 2010; Lin et al., 2011). In contrast, the results show that the perception of review quality is not influenced by how the review is presented, and does not influence purchase intention. This suggests more research should be undertaken to examine the effect of review quality on purchase intention to more clearly understand the association between review quality and purchase intention.

This study also successfully replicated previous findings that review valence is positively related to attitude towards the product (Xia & Bechwati, 2008; Shin, 2008; Godes & Mayzlin, 2004), and that review valence is not related to attitude towards the e-Retailer (Detlor et al., 2003; Creamer, 2006; Lee et al., 2009).

Furthermore, the study found no significant review modality \times review valence interaction effect on the attitude towards the product and the e-Retailer. There is still abundant room for future studies to take these variables into account and further examine the relationships.

Managerial Implications

This study provides several managerial implications for manufacturers and e-Retailers to have a deeper understanding of the important role of review modality in attitudes and purchase intention.

First, the online shopper profile demonstrates the importance of online reviews. The findings show that over 90% of people will consult online product or service reviews before their purchase. However, less than 50% of people have ever posted a review about a product or service on the Internet, as it is shown in the Table 5. Therefore, marketers should put electronic Word-of-Mouth into their marketing communication mix and spend more effort on generating online reviews. They can send emails to remind consumers of posting their opinions after their purchase, or offer incentives and entertainment - such as coupons, discounts, reward points, a prize drawing, or online games (Lin, Lee & Horng, 2011) - for consumers to write a review. e-Retailers can also include reviews from well-known third-party online reviews. Besides, e-Retailers can track and monitor online reviews to help decide whether they should increase inventories or stop selling certain products in the online store.

Due to the importance of online reviews (people read online reviews before purchase and the richer media review could generate more positive attitude and higher purchase intention than text only review), e-Retailers should educate and encourage reviewers to post more picture or video reviews than text only reviews. One recommendation is that e-Retailers should design a clear and simple review posting service that is easy for consumers to write their opinions, as well as post pictures and upload videos. The other recommendation is that e-Retailers should contact

consumers who have already posted positive text reviews to post pictures and video of the product.

It is interesting to note that though the negative review has a negative impact on attitude towards the product, it may not always been a bad thing to e-retailers and manufacturers.

According to the findings, the mere existence of the review could generate positive attitude towards the e-retailer regardless of review valence. Therefore, for e-Retailers who carry a variety of brands and products, a few negative reviews may not impair the reputation and total sales since consumers usually associate the unfavorable attitudes with the product and the product's brand (Lee et al., 2009). Besides, negative reviews are less likely to be written by paid reviewers, and consumers often appreciate the negative reviews that keep them from buying a bad product. This can help build consumers' trust towards the e-Retailer and gradually generate more favorable attitudes towards the e-Retailer and more future visits to the online store.

Negative reviews can be beneficial to manufacturers as well. When facing negative reviews, manufacturers can minimize the negative impacts by reaching out to complaining consumers and offering customer services to salvage the relationship. It would be even better if the changed post-purchase experience and product attitudes could be updated in the original negative comment. On the other hand, these free and valuable consumer feedback can help manufacturers to improve product design and services based on the real customer needs and can supplement expensive market research such as focus groups or surveys.

Although e-Retailers may wish to take advantages of using richer media review to retain their customers and increase sales, it should be noted that picture and video reviews should be used with careful caution due to several disadvantages that may backfire. First, videos and pictures slow the loading of a webpage and require high Internet speed, which may generate an unsatisfactory shopping experience if the technical requirements are not met. Second, as Elaboration Likelihood Model indicates, low-involvement consumers may be reluctant to watch a video review as it takes longer time to process information than to read a picture review. Therefore, e-Retailers should not hastily allow submitting picture or video reviews before they have necessary technical or financial resources, and understand the involvement type of its key customers.

Limitations and Future Research Directions

This study has some limitations and provides a basis for informing future studies.

First, though this study used a broader sample from students only, the sample over-represents subjects who are young, female, have higher education and higher household income than the general population. Future study can use a more representative sample based on U.S Census data.

Second, the final data set is slightly unbalanced. The fact that participants dropped out in middle of the survey, and that more responses were collected for the text with video review condition, affect the random assignment and turn the study into a quasi-experiment. To accommodate the unbalanced data, this study uses Type III Sums of Squares to measure the significance and analyze data. Future study can solve this problem by using a true experimental design with random assignment.

Third, the study respondents encountered difficulties in correctly identifying the text with video condition. It may be due to the wording of the manipulation check question, which allowed participants to select as many options as they want. We suggest future studies revise the

manipulation check question into one multiple-choice question so only one item can be selected at a time to reduce mistakes caused by accident or confusion.

The other possible reason for misidentification of modality is that an online survey makes it difficult to tell whether the participants read the stimuli carefully to answer the manipulation check question. Based on the interviews with participants, some reported they skimmed the screenshot of the webpage, and some reported they considered the screenshot of the video review as a picture review. As a result, the study sacrificed the external validity by eliminating the product pictures in the webpage and repeatedly displaying the screenshot of the webpage in the main study. Thus we suggest future studies conduct the experiment in a lab environment and increase participant engagement. Researchers could invite participants to the lab to browse the webpage, which can mimic the real online shopping environment. Also, participants would be asked to answer the questionnaire in the lab, which can reduce distractions and make them concentrate on the experiment.

Another limitation and thus opportunity for future studies is that this study is limited to one single product category - electronic product (a tablet). Future study could test the results across different product categories. In addition, it would be interesting to test the results between search goods and experience goods. This study used the search good, a tablet, meaning the product that consumers can evaluate its quality before purchase, rather than the experience good, such as a restaurant or a hotel, defined as a product that consumers need to experience to evaluate its quality (Nelson, 1970). Consumers may be more likely to seek richer media recommendations to help them evaluate experience goods than search goods.

Also, this study only examines the effects of review modality on online purchase intention. Future studies can investigate the actual and offline purchase decision. It will be interesting to

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explore persuasive information displayed in different modalities will influence people's actual offline behavior in the same way. For example, when searching for an apartment online and reading the apartment reviews, are online shoppers more willing to pick up the phone to schedule an apartment visit after reading some positive reviews posted with apartment tour pictures or even videos than simple text reviews?

With the fast growth of mobile marketing, the effect of review modality in the mobile environment, such as mobile retailer apps and mobile review/recommendation sites or apps, is also intriguing and worthy of future research. Future studies can investigate the most persuasive mobile review modality on the mobile interface to motivate purchase intention. For example, when looking for a local restaurant in a strange city by using the *Yelp* mobile application, how will those reviews displayed on the mobile phone affect the consumption decision? Will shoppers be simply persuaded by the star ratings and a quick glimpse of several review titles? Or will they stop reading through the reviews when they find the text reviews posted with food photos that seem both reliable and appealing?

Additionally, future studies could also take into account consumers' personal traits, such as perceived expertise, purchase involvement or situational involvement, need for cognition, and skepticism toward reviews.

APPENDICES

Appendix A. Pretest Questionnaire

Tablet Pre-test SurveyParticipants Informed Consent

1. PURPOSE OF RESEARCH:

You are being asked to participate in a survey to identify appropriate brand name for a new product and website. The data of this survey will be used in a future study.

2. WHAT YOU WILL DO:

If you decide to participate in this study, you will be asked to fill out a questionnaire. Your participation in this study will take up to 5 minutes.

3. POTENTIAL BENEFITS:

You may not personally benefit from your participation in this research study. However, your participation is very important for an online shopping study.

4. POTENTIAL RISKS:

There are no known risks associated with your participation in this research activity.

5. PRIVACY AND CONFIDENTIALITY:

Your responses are confidential. Data collected in this project will be stored in password-protected computers. Only researchers on this project have access to the information. All information will be reported in aggregate form. After the study is completed, we will keep the information for two years after journal publication.

6. YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW:

Your participation is voluntary. You can choose to participate in this study or not. If you volunteer to be in this study, you may refuse to answer certain questions or discontinue your participation at any point.

7. CONTACT INFORMATION FOR QUESTIONS AND CONCERNS:

This research is being conducted through the Department of Advertising and Public Relations at Michigan State University. If you have any questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher Mengtian Jiang at 1-517-515-9687, online at jiangme2@msu.edu, or Dr. Patricia Huddleston at 517-353-9907, online at huddles2@msu.edu.

By clicking "next", you are indicating your agreement to participate in this study.

- 1. Do you currently own a tablet/iPad?
- ____Yes
- ____ No, jump to 3

2. If yes, how many tablets/iPads have you ever owned?

- ____5
- ____ more than 5

3. Below are a list of existing tablet brands and their products. Which brand are you familiar with? Please rank the top 6 tablet brands that you are familiar with in this list. The rank value is from $1\sim 6$ (1: Most familiar; 6: 6th most familiar).



Figure 6 Pretest List of Existing Tablet Brands and Products

4. A new tablet is going to be released in the market. Below are the suggested new brand names. Which one is your favorite brand name? Please rank the top 3 brand name that you like most in the list. The rank value is from $1 \sim 3$ (1: Most favorite; 3: Third most favorite).

- DreamPad
- Eumius
- Godigi
- RockeTab
- XtraNote
- TABSONIC
- ViewStone
- ZEIKO

- 1. Most Favorite
- 2. Second most favorite _____
- 3. Third most favorite

5. A new website is being launched to sell electronic products, i.e. tablet pc. Below are the suggested new website names. Which one is your favorite website name? Please rank the following name from your most favorite one to least favorite one. The rank value is from $1\sim3$ (1: Most favorite; 3: Third most favorite)

____ www.e-mall.com

- ____ www.eonlinestore.com
- ____ www.skybuy.com
- ____ www.godigi.com
- ____ www.tabletstore.com
- ____ www.tabletpc-mall.com
- ____ www.tabletcity.com

- 1. Most Favorite
- 2. Second most favorite _____
- 3. Third most favorite

Appendix B. Stimuli

Figure 7 Upper Half of the Webpage in Main Study - Positive Review

TAB	LET STORE	Need Help? 888-TAB-LETS MON-FRI 8AM-SPM PST	Shopping Cart	Items: 0 Subtotal: \$0.00	
TABLE	TS ACCESSERI	ES DEALS	GIFTS		
SEARCH:	RE > TABLETS > XtraNote Tablet P(S4.99 FLAT-RATE S OR EVERY	HIPPING N	PPY CUSTOMER GUARANTEE	
Model: MS-309	SKU:48823 (16) Tablet St	tore Price: \$389.99	Quantity: 1		
Product Feat	tures:		🗧 🐂 A	dd to Cart	
OS: Google And RAM: 2GB DDR	roid 4.0 3		Shop	with Confidence	
Internal Storage External Storage	e Capacity: 16GB e Capacity: 32 GB			isy Returns and Refunds afe and Secure Guaranteed	
Screen: 10.1 inc	h IPS Capacitive Multi-touch Pa	anel 1024 x 768 (XGA)			

Note: The first line shows the retailer name "Tablet Store" on the left, the fictitious contact phone number and the hours ("Mon-Fri, 8am-5pm PST") in the middle, as well as a shopping cart with the price on the right. The third line shows a search bar on the left, "\$4.99 flat-rate shipping on every order" in the middle, and "happy customer guarantee, shop with confidence" on the right.

Need Help? **TABLET STORE** 888-TAB-LETS Shopping Cart M Items: 0 Subtotal: \$0.00 ON-FRI RAM-SPM PST ACCESSERIES TABLETS DEALS GIFTS FLAT-RATE SHIPPING HAPPY CUSTOMER GUARANTEE SEARCH: GO TABLET STORE > TABLETS > XtraNote Tablet XtraNote Wifi 10.1 inch Tablet PC Model: MS-309 SKU:48823 Tablet Store Price: \$389.99 Quantity: 1 **全全**命命命 (16) **Product Features:** Add to Cart CPU: 1Ghz OS: Google Android 4.0 Shop with Confidence RAM: 2GB DDR3 100% Satisfaction Easy Returns and Refunds Internal Storage Capacity: 16GB Safe and Secure Guaranteed External Storage Capacity: 32 GB Screen: 10.1 inch IPS Capacitive Multi-touch Panel 1024 x 768 (XGA)

Figure 8 Upper Half of the Webpage in Main Study - Negative Review

Note: The first line shows the retailer name "Tablet Store" on the left, the fictitious contact phone number and the hours ("Mon-Fri, 8am-5pm PST") in the middle, as well as a shopping cart with the price on the right. The third line shows a search bar on the left, "\$4.99 flat-rate shipping on every order" in the middle, and "happy customer guarantee, shop with confidence" on the right.

Figure 9 Four Pictures Used in Text + Picture Review Condition



Screen



SD card slot



Typing

Camera

 Image: Image:

Figure 10 Video Used in Text + Video Review Condition

Click to watch the video.

Pros:

- Bright and clear screen.

The screen has good viewing angles and resolution and the display is bright. Text is very easy to read on the 10.1 inch screen. The colors are vivid and HD videos are very clear on this high resolution screen. Also, it has great sound quality. The microphone and speaker sound is good and loud.

- A slot for a micro SD Card.

The tablet has 16GB internal storage capacity. Besides, it has a slot to expand the storage capacity up to 32 GB. I plugged in a 16GB MicroSD and the tablet instantly had 32GB capacity in total. It is much cheaper than those large-storage (32GB or 64GB) tablets and still provides lots of room to add more music and files later.

- Long battery life.

The battery life is amazing so far. It is said that it can run 9 hours with full charge. Actually it can last about a day and a half of not heavy intense use, such as for surfing the Internet, checking emails, downloading apps and setting them up, and playing some movies and songs.

Cons:

- Lagging in typing, tapping or swiping.

It takes me a little time to get used to the keyboard, which is not responsive. Also, the response of the tap or swipe on the screen is not consistent. Sometimes it's sensitive, sometimes it is not. I have to tap/swipe hard or multiple times before it responds.

- Bad camera/video quality.

The camera/video quality is below average. It doesn't have the LED flash on the cameras and thus the quality is even worse than expected in low light. It is serviceable for video chat but don't use it for taking pictures or videos.

- Lack of cases for this particular tablet.

Right now I can't find cases for this tablet but I assume they will be released in the coming months.

Appendix D. Main Study Questionnaire

Online Shopping Survey Participants Informed Consent

1. PURPOSE OF RESEARCH:

You are being asked to participate in an online shopping study.

2. WHAT YOU WILL DO:

If you decide to participate in this study, you will be asked to fill out a questionnaire. Your participation in this study will take up to 15 minutes.

3. POTENTIAL BENEFITS:

You may not personally benefit from your participation in this research study. However, your participation will enhance our understanding of people's perception, attitudes and behaviors toward online shopping.

4. POTENTIAL RISKS:

There are no known risks associated with your participation in this research activity.

5. PRIVACY AND CONFIDENTIALITY:

Your responses are confidential. Data collected in this project will be stored in password-protected computers. Only researchers on this project have access to the information. All information will be reported in aggregate form. After the study is completed, we will keep the information for two years after journal publication.

6. YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW:

Your participation is voluntary. You can choose to participate in this study or not. If you volunteer to be in this study, you may refuse to answer certain questions or discontinue your participation at any point.

7. CONTACT INFORMATION FOR QUESTIONS AND CONCERNS:

This research is being conducted through the Department of Advertising and Public Relations at Michigan State University. If you have any questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher Mengtian Jiang at 1-517-515-9687, online at jiangme2@msu.edu, or Dr. Patricia Huddleston at 517-353-9907, online at huddles2@msu.edu.

If you have any questions about your role and rights as a research participant, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Director of MSU's Human Research Protection Programs at 517-355-2180, FAX 517-432-4503, or e-mail irb@msu.edu, or regular mail at: 202 Olds Hall, MSU, East Lansing, MI 48824.

Documentation of Informed consent

By clicking "next", you are indicating your agreement to participate in this study.

1a. How many times have you browsed, researched or compared products online in the past year?

____0 ____1~4 ____5~10 ____11~20 _____more than 20

1b. How many times have you browsed, researched or compared services online in the past year, such as such as music, video, apps or games in iTunes store and airline tickets?

____0 ____1~4 ____5~10 ____11~20 ____more than 20

If the participant chooses "0" to both of above two questions, then the questionnaire will jump to demographic part.

2a. How many times have you purchased a product online in the past year?

____0 ____1~4 ____5~10 ____11~20 ____ more than 20

2b. How many times have you purchased services online in the past year, such as music, video, apps or games in iTunes store and airline tickets?

____0 ____1~4 ____5~10 ____11~20 more than 20

Imagine that you have been given a \$400 gift card to an online shopping mall, *www.tabletstore.com*. You decide to purchase a tablet computer with this gift card. Below is a screenshot of a new brand of tablet called *XtraNote*. Take your time browsing the information, and decide whether you will buy this product with the gift card by answering the following questions.

<The participant will see one of six stimuli here. >
Perceived Review Quality

3a. The review has sufficient	Strongly	Disagree	Neutral	Agree	Strongly
information that I expect it to	Disagree				Agree
have.	1	2	3	4	5
3b. The review provides	Strongly	Disagree	Neutral	Agree	Strongly
complete information about the	Disagree				Agree
product.	1	2	3	4	5
3c. The review provides detailed	Strongly	Disagree	Neutral	Agree	Strongly
information about the product.	Disagree				Agree
	1	2	3	4	5
3d. The review provides accurate	Strongly	Disagree	Neutral	Agree	Strongly
information about the product.	Disagree				Agree
	1	2	3	4	5
3e. The review provides timely	Strongly	Disagree	Neutral	Agree	Strongly
information about the product.	Disagree				Agree
	1	2	3	4	5
3f. The review provides reliable	Strongly	Disagree	Neutral	Agree	Strongly
information about the product.	Disagree				Agree
-	1	2	3	4	5

Attitude towards the product

4a. I think XtraNote tablet is					
Bad				Good	
1	2	3	4	5	
4b. I think XtraNot	te tablet is				
Unappealing				Appealing	
1	2	3	4	5	
4c. I think XtraNot	e tablet is				
Unattractive				Attractive	
1	2	3	4	5	
4d. I think XtraNote tablet is					
Boring				Interesting	
1	2	3	4	5	
4e. IXtraNote tablet.					
Dislike				Like	
1	2	3	4	5	

Attitude towards the e-retailer

5a. I think Tabletstore.com is					
Bad Good					
1	2	3	4	5	
5b. I think Tabletstore.com is					

Unfavorable				Favorable
1	2	3	4	5
5c. I Tabletstore	.com.			
Dislike				Like
1	2	3	4	5

Purchase Intention

6a. How likely is it that	Very	Somewhat	Not Sure	Somewhat	Very
you will buy this tablet	Unlikely	Unlikely		Likely	Likely
from this website with the	1	2	3	4	5
\$400 gift card?					
6b. How likely is it that	Very	Somewhat	Not Sure	Somewhat	Very
you will buy this tablet	Unlikely	Unlikely		Likely	Likely
you viewed today in the	1	2	3	4	5
next 12 months?					
6c. How likely is it that	Very	Somewhat	Not Sure	Somewhat	Very
you will shop for this	Unlikely	Unlikely		Likely	Likely
tablet online when you	1	2	3	4	5
buy a tablet in the					
upcoming year?					
6d. How likely will you	Very	Somewhat	Not Sure	Somewhat	Very
buy the tablet seen in this	Unlikely	Unlikely		Likely	Likely
website for yourself in	1	2	3	4	5
the upcoming year?					

Manipulation Check 7. The review I saw on the webpage contains (Check all that apply to you):

- ____ Text
- ____ Picture
- ____ Video

8. The review I saw on the webpage is:

Negative	Slightly Negative	Neutral	Slightly Positive	Positive
1	2	3	4	5

Online Shopper Profile

9a. How many times have you read a consumer review about a product posted on a retailer's webpage before a purchase (either online or offline) in the past year?

____0 ____1~4 ____5~10 ____11~20 ____ more than 20

9b. How many times have you read a consumer review about a service posted on a retailer's webpage before a purchase (either online or offline) in the past year?

____0 ____1~4 ____5~10 ____11~20 ____ more than 20

9c. How many times have you written a consumer review about a product and posted it on the retailer's webpage in the past year?

____0 ____1~4 ____5~10 ____11~20 ____ more than 20

9d. How many times have you written a consumer review about a service and posted it on the retailer's webpage in the past year?

____0 ____1~4 ____5~10 ____11~20 ____ more than 20

10a. Do you currently own a tablet/iPad?

___Yes

_____ No, jump to 11

10b. If yes, how many tablets/iPads have you ever owned?

____0 ____1 ____2 ____3 ____4 ____5 ____more than 5

- 11. Which of the following sentences best describes yourself?
- ____ I know nothing/little about tablet.
- ____ I have average knowledge of tablet.
- ____ I am a savvy tablet user/customer.

Demographics

12. What year were you born?

- 19____
- 13. You are _____.
- ____ Female
- ____ Male
- ____ Prefer not to disclose
- 14. Your ethnicity is _____.
- ____ African-American
- ____ Asian
- ____ Caucasian
- ____ Hawaiian Nation or Pacific Islander
- ____ Hispanic, Latino or Spanish origin
- ____ Native American or Alaskan native
- ____ Multiracial
- ___ Other____
- 15. What is the highest educational level you have completed?
- _ _ Less than high school
- _ _ High school/ GED
- _ _ Some college
- _ _ 2 year college degree (associated)
- _ _ 4 year college degree (BA, BS)
- _ _ Master's degree
- _ _ Doctoral degree
- _ _ Professional degree (MD. JD)
- _ _ Prefer not to disclose
- 16. What is your family's total household income before taxes?
- _ _ Under \$10,000
- _ _ \$10,000 to \$24,999
- _ _ \$25,000 to \$49,999

- _ _ \$50,000 to \$74,999
- _ _ \$75,000 to \$99,999
- _ _ \$100,000 or more
- _ _ Prefer not to disclose
- 17. Which of the followings best describes your current employment status?
- _ _ Employed full time
- _ _ Employed part time
- _ _ Unemployed
- _ _ Homemaker, not employed outside home
- _ _ Student, not working for wages
- _ _ Disabled, not working outside home
- _ _ Retired

Table 14 Online Shopping, Buying, Reviewing Behavior in the Past Year

Item	Frequency (Percentage)				
Online Shopper Behavior	0	1-4	5-10	11-20	>20
Browsing, researching or comparing	0(0)	45(13%)	65(19%)	52(15%)	185(53%)
products online					
Browsing, researching or comparing	34(10%)	96(28%)	85(25%)	50(14%)	82(24%)
services online					
Online Buyer Behavior	0	1-4	5-10	11-20	>20
Purchasing products online	5(1%)	50(14%)	101(29%)	91(26%)	100(29%)
Purchasing services online	55(16%)	125(36%)	75(22%)	42(12%)	50(14%)
Online Review Behavior	0	1-4	5-10	11-20	>20
Reading online product reviews	18(5%)	66(19%)	90(26%)	78(23%)	95(27%)
before purchase					
Reading online service reviews	28(8%)	105(30%)	89(26%)	67(19%)	58(17%)
before purchase					
Writing online product reviews	178(51%)	106(31%)	46(13%)	7(2%)	10(3%)
Writing online service reviews	211(61%)	96(28%)	30(9%)	5(1%)	5(1%)

Table 15 iPad/Tablet User Profile

Item	Frequency	Percentage
Do you currently own a tablet/iPad?		
No	226	65.1%
Yes	121	34.9%
Total	347	100%

How many tablets/iPads have you ever owned?		
1	93	77.5%
2	23	19.2%
3	2	1.7%
4	1	.8%
5	1	.8%
Total	120	100%

Which of the following sentences best describes yourself?				
I am a savvy tablet user/customer.	58	16.7%		
I have average knowledge of tablet.	237	68.3%		
I know nothing/little about tablet.	52	15%		
Total	347	100%		

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