A SOCIAL NETWORK APPROACH TO THE INFLUENCES OF SHOPPING EXPERIENCES ON E-WOM

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ABSTRACT

Consumers who had memorable shopping experiences (i.e., special promotions or exceptional services) tend to resort to word-of-mouth to tell significant others in their social network about those experiences. The study aims to investigate the role of social networks in the adoption and dissemination of e-WOM arguments. The study's objectives are three-fold.: First, the study examines the effects of consumers' in-store shopping experiences on the level of and quality of e-WOM communication by considering Schmitt's [1999] five strategic experiential modules (sense, feel, think, act, and relate). Second, the study verifies whether three attributes of social networks (the strength, centrality, and range of ties) influence e-WOM communication. Third, the study determines whether the presentation of e-WOM arguments and product categories influences the evaluation and adoption of e-WOM communication. The results indicate that some types of shopping experiences are more likely to influence e-WOM communication than others, which demonstrates the usefulness of developing e-WOM proliferation strategies for retail stores catering to the five strategic experiential modules. In addition, the results verify that e-WOM arguments are more effective when they are presented by using both images and text and suggest that managers of online stores should differentiate between e-WOM diffusion strategies based on the characteristics of products and the level of their involvement.

Keywords: Shopping Experience, Social Network, E-WOM, Argument Presentation, Product Type

1. Introduction

Consumers who had memorable shopping experiences (i.e., special promotions or exceptional services) tend to resort to word-of-mouth to tell significant others in their social network about those experiences. As we live in the age of networked society, the importance of knowing what of the network features causes people to produce and accept product-related information has significantly increased. The role of social networks as a communication tool for marketing has received considerable attention in recent years, reflecting the phenomenal growth of SNSs such as Facebook and Twitter. The concept of social networks centers on determining network centrality, identifying influential actors, and explaining the connection between actors [Burt 1982]. These network attributes are useful for measuring the effects of word-of-mouth (WOM) communication because they have considerable influence on the diffusion of online word-of-mouth (e-WOM) communication and its characteristics (quantity and quality), which ultimately influence purchase decisions.

However, previous studies have rarely employed network attributes to examine the diffusion of e-WOM communication, considering network attributes mainly as an exogenous variable, not as a direct antecedent of e-WOM communication. However, the social network paradigm assumes that the world exists based on relationships between individuals, and therefore individuals' experiences based on these relationships should provide a foundation for building lasting relationship [Burt, 1982]. This provides the present study with the motivation to verify whether network attributes play an important role in facilitating e-WOM communication, which can influence consumers' shopping experiences.

Some studies have suggested that consumers' experiences reflect a multi-dimensional concept entailing sensory, affective, cognitive, behavioral, and relational dimensions and that these experiences can replace functions and features of products as a salient measure of purchasing decisions and emphasized the dual (individual and social) aspect of consumers' experiences [Schmitt 1999, 2003; Yoon 2006, 2008]. A consumer's shopping experience is basically a manifestation of his or her personal as well as social need for goods and services because purchasing decisions involve a process of searching for and internalizing social norms, which requires networked information, and in this sense, e-WOM communication can facilitate this process. However, few studies have integrated experiential, social, and communication aspects of consumers' shopping experience.

Although a number of studies have examined the determinants of WOM communication in online settings [Lee et al. 2006; Lim & Lee 2007; Cheung et al. 2008], they have typically focused on the relationship between e-WOM messages and e-WOM adoption, paying little attention to the extent to which e-WOM adoption is subject to the type of product or to the way WOM messages are

presented. For this reason, the present study verifies whether the type of e-WOM presentation or the type of product considered in e-WOM messages influences e-WOM adoption. The results should have important implications because large firms tend to employ e-WOM strategies through a diverse range of social networking platforms such as blogs and SNSs to increase customer traffic and the persuasiveness of e-WOM messages. However, most studies considering the presentation of advertising messages have focused on the effects of creative elements of advertisements on brand awareness [Lutz 1977; Wright & Rip 1980; Kisielius & Sternthal 1984] and recall [Mowen 1988; Lutz & Lutz 1976; Childers & Houston 1984], paying little attention to the relationship between the way a product review is presented (e.g., text versus a picture) and e-WOM adoption.

This study contributes to the literature by considering the following three research objectives: First, this study views e-WOM communication as a communication tool as well as a behavioral outcome resulting from consumers' shopping experiences and verifies the effects of consumers' in-store shopping experiences on their e-WOM behavior (the quantity and quality of arguments) based on Schmitt's [1999] five strategic experiential modules (SEMs).

Second, based on previous studies of network attributes, the study verifies whether three network attributes (the strength, centrality, and range of ties) influence consumers' e-WOM behavior in terms of the quantity and quality of their arguments.

Third, the study determines whether the presentation of arguments or the type of product in e-WOM communication influences in the adoption of arguments. For this, the study considers two types of presentations (text vs. pictures) and two types of products (more functional products vs. less functional ones).

2. Literature Review and Hypotheses

2.1 Consumers' Experiences and E-WOM Communication

Previous studies have found a close relationship between consumers' experiences and knowledge and their WOM communication. Some have focused on the relationship between consumers' past experiences and their WOM intentions, including the quantity of arguments. For instance, employing negativity bias theory, Yoon [2006] and Shin [2006] reported that consumers are more likely to seek WOM communication when they are satisfied with their purchase. In addition, Yoon [2005] found that WOM intentions are influenced not only by the directionality (positive or negative) of a particular experience but also its intensity and that WOM communication is influenced by altruistic motives regardless of the level of satisfaction.

Other studies have examined the relationship between consumers' past experiences and WOM communication and produced somewhat mixed results. Kim [2006] reported that an individual's experience-based recommendation is the most important information source for the choice of indigenous food products. Punji and Staelin [1983] defined consumers' shopping experiences as useful prior information and reported that these experiences have negative effects on external searches. By contrast, Goldman and Johanson [1978] verified a positive relationship between consumers' prior knowledge and/or experiences and information searches. There has also been a study which investigated the effect of social influences on individual shopping preferences in the context of virtual communities [Pentina et al. 2008].

Several studies have investigated the effects of product knowledge on the quantity of WOM arguments but have produced somewhat mixed results [Kim 1995; Kim 1992]. For instance, Park and Jung [2006] conducted a content analysis of consumers' online reviews and reported that experienced goods tend to facilitate subjective WOM communication, whereas searched goods, objective WOM communication. These results indicate that consumers' prior knowledge and experiences may play important roles in the determination of the quantity of e-WOM communication.

Although a number of studies have examined the relationships between consumers' prior knowledge and experience and the quantity of WOM communication, few have considered the relationship between consumers' product experience and the quality of e-WOM communication, although the quality of e-WOM arguments may depend mainly on consumers' purchase experience and their satisfaction with purchases. Previous studies have generally overlooked the experiential aspects of e-WOM communication, focusing mainly on variables such as the persuasiveness of arguments [Bhattacherjee & Sanford 2006]; the content, correctness, form, and timeliness of messages [Doll & Torkzadeh 1988]; and the correctness, understandability, completeness, recency, dynamics, individualization, and diversity of information [DeLone & McLean 2003].

These findings indicate that the adoption of e-WOM communication may depend on the quality of arguments, which (like the quantity of arguments) may be influenced by consumers' prior purchase experiences. That is, consumers' in-store purchase experiences may facilitate e-WOM communication in terms of its quality as well as quantity. In this regard, we propose the following hypothesis:

H1: Consumers' in-store shopping experiences have a significant effect on their e-WOM behavior in terms of the quantity and quality of e-WOM arguments.

2.2 Social Networking Sites and E-WOM Communication

The concept of social networks can help explain e-WOM behaviors because its theoretical premise is based on the notion that the accumulation of reciprocal exchanges builds social networks, which facilitate the exchange of resources between social actors [Wellman & Berkowitz 1998]. This concept is particularly useful for identifying the

ways in which e-WOM communication is diffused because network characteristics have considerable influence on the level and intensity of communication between network actors. Therefore, network attributes may facilitate the diffusion of e-WOM communication among network actors.

We now discuss three widely researched network attributes (the strength, centrality, and range of ties) by focusing on their relationships with e-WOM communication.

2.3   Strength of Network Ties and E-WOM Communication

Bansal and Voyer [2000] examined the relationship between social networks and e-WOM communication and reported that, regardless of the message itself, the ways in which communication counterparts are connected determine the e-WOM process and its effects. This finding provides important insights into the effects of network attributes on e-WOM communication. The strength of network ties has been defined as a multi-dimensional construct representing dyadic personal relations in social network context and is composed of various factors such as intimacy, familiarity, assistance, and association [Frensen & Davis 1990]. In general, e-WOM communication typically occurs in social relationships whose intensity or strength is determined by the closeness of the relationship between e-WOM diffusers and adopters. That is, the strength of ties, which indicates the intensity of relationships, may influence e-WOM communication [Bristor 1990].

Some studies have linked the strength of ties to the quantity of e-WOM communication. Lee et al. [2010] conducted a network analysis to examine this quantity by considering subjects in the early stages of e-WOM diffusion and found that the strength of ties, the opinion leader, and the connector have considerable influence on this quantity. In addition, Brown and Reingen [1987] found that the strength of ties influences information streams and that individuals with strong ties are more likely to exchange information than those with weak ones. Further, employing social exchange theory, Frenzen and Nakamoto [1993] found that the greater the tie strength, the higher the economic value of the information produced. This indicates that the strength of ties may influence the quantity as well as quality of e-WOM communication.

Based on the above discussion, e-WOM attributes (the quantity and quality of ties) in context of social networks may depend mainly on the intensity of social relationships (strong vs. weak ties). In this regard, we propose the hypothesis:

H2a: The strength of one's ties in a social network is positively related to one's e-WOM behavior in terms of the quantity and quality of arguments.

2.4   Network Centrality and E-WOM Communication

Network centrality refers to the centrality of an actor in terms of his or her position within a social network. In general, an actor is said to centrally located if he or she is connected to a number of other actors (degree centrality) or occupies a strategic position in the overall network (betweenness) [Scott 1991]. In addition, centrality posits that an actor assumes a role as a reliable partner in a concentric relationship. According to resource dependency theory, centrality refers to the extent to which some resources are controlled by an actor as a result of his or her network ties [Pfeffer & Salancik 1978]. Rogers [2003] examined innovation diffusion and provided support for the view that central actors are likely to be innovators because 1) their excess information may be used as a proxy for the use of critical resources, 2) they have easy access to information because of their concentric positioning, and 3) they are status conscious and thus refrain from imitating others.

From a marketing perspective, an actor's centrality plays an important role as a source of e-WOM references, particularly in social networks involving buyers and sellers. Feick and Price [1987] used the term "market maven" to explain those opinion leaders who influence others' decisions in the market. Market mavens "characteristically possess quite a lot of information about diverse products, engage in intimate conversations with ease, and quickly respond to requests for market information" [Feick & Price 1987, p. 85]. Rogers [1995] posited that opinion leaders play a role as a central market figure and they are likely to become active agents in facilitating e-WOM communication. There has also been a study on the influence of opinion leaders on disseminating information in the domain of e-commerce in a work setting [Raghupathi 2009].

Based on these findings, opinion leaders or market mavens are market influentials and occupy central positions in social networks. These influentials actively facilitate e-WOM communication because they are highly motivated. Given these behavioral traits, network centrality may be positively related to e-WOM behaviors. In this regard, we propose the following hypothesis:

H2b: One's network centrality is positively related to one's e-WOM behavior in terms of the quantity and quality of arguments.

2.5   Network Range and E-WOM Communication

The term "network range" refers to the level of diversity in terms of an actor's ties to others [Burt 1982]. For instance, an individual whose network ties reflect a diverse range of races, occupations, and social groups is said to have a broad range of network ties. A number of studies have viewed network diversity as a source of resource utilization and social information. For instance, Rogers [2003] postulated that heterogeneous networks are more

likely to produce social information. Similarly, Burt [1992] asserted that a broad network range may play a critical role in the development of efficient and effective networks because it is difficult for individuals with a narrow range of network ties to imitate or replicate available resources.

Some studies have suggested that network diversity plays a role as a bridge between heterogeneous groups and thus facilitates information diffusion. Rogers [2003] proposed that when there is a discrepancy between message senders and receivers in terms of the meaning, belief, and reciprocal understanding embedded in messages, then there is heterophily. He contended that such heterogeneous inter-group communication can facilitate relationships between different cliques. Granovetter [1973] asserted that the heterogeneous link referred to as the "bridge" is crucial for diffusing information on innovation because the diffusion process can accelerate in the presence of outwardly heterogeneous communication links. Rogers [2003] extended this view and contended that when the interpersonal diffusion network is heterogeneous, individuals tend to search for opinion leaders who have higher social status and more education and make frequent use of mass media. Other studies have reported that when individuals have weak ties, there is an increase in the diversity of channeled information as well as the specialization of topics [Constant et al. 1997].

In sum, the network range, which addresses the diversity of network members, may accelerate network communication by uniting heterogeneous groups and thus facilitating an environment conducive to e-WOM communication. In this regard, we propose the following hypothesis:

H2c: One's range of network ties is positively related to one's e-WOM behavior in terms of the quantity and quality of arguments.

2.6. Presentation/Product Type and Argument Adoption

This study verifies whether the type of presentation or product associated with e-WOM arguments influences the adoption of e-WOM communication. Previous studies of the effects of the type of advertising on consumers' brand awareness and recall have typically focused on the effects of the information format on the way audiences process given information [Lutz 1977; Wright & Rip 1980; Kisielius & Sternthal 1984]. A number of studies have investigated the effects of words and images used in advertising on consumers' recall [Mowen 1988; Lutz & Lutz 1976; Childers & Houston 1984].

Dual coding theory, widely employed in cognitive psychology, posits that one tends to memorize information better when it is provided through pictures than through some text because pictures are stored in and retrieved from one's memory with greater ease as a result of the dual (simultaneous) processing of linguistic and visual information, whereas words are generally processed only linguistically [Childers & Houston 1984; Mowen 1988]. Some studies have explained this difference by using the concept of mental imagery, which is easily activated when information is conveyed through images [Childers & Houston 1984; Unnava & Burkkrant 1991; Leong et al. 1996]. Based on this theory in the context of e-WOM communication, an e-WOM argument presented through text as well as images may lead to a more favorable evaluation (and thus better facilitate the adoption of the argument) than a text-only e-WOM argument. In this regard, we propose the following hypothesis:

H3: The way in which an e-WOM argument is presented (text/image vs. text–only presentations) has significant effects on the evaluation and adoption of the argument.

2.7 Product Type and the Adoption of E-WOM Communication

Types of products that individuals argue over through e-WOM communication may influence the adoption of arguments. Few studies have examined the effects of product characteristics on e-WOM communication. Park et al. (2007) investigated the relationship between the type of product and e-WOM arguments and found that in the case of experiential products such as movies, which provide emotional benefits such as pleasure and fun, positive e-WOM communication is more likely to influence purchase intentions because hedonic values associated with such products elicit positive expectations [Park et al. 2007]. There has also been a study which examined gender difference in the adoption of mobile TV services [Constantiou & Mahnke 2010].

Choi et al. [2002] examined the relationship between the functionality of products and the content of e-WOM arguments (subjective vs. objective) and reported that for functional products (e.g., notebook computers and MP3 players), objective/factual arguments are more likely to influence the evaluation of products and purchase intentions, whereas for emotional products (e.g., movies and perfumes), subjective/evaluative arguments are more likely [Choi et al. 2002].

Based on these findings, the type of product may influence the evaluation and adoption of e-WOM arguments. In this regard, we propose the following hypothesis:

H4: The type of product considered in an e-WOM argument has significant effects on the evaluation and adoption of the argument.

3. Methods
3.1 Operational Definitions

We employed survey and experimental methods to test the hypotheses. For the survey, we operationalized the three major constructs as follows:

3.1.1 Store Experience

We considered a consumer's in-store shopping experience as an antecedent of his or her e-WOM communication because, as discussed earlier, a consumer who experiences a store is likely to talk to his or her network members about the experience, allowing information receivers to benefit from the information (e.g., promotions, new products, and service failures). To operationalize consumers' shopping experiences, we employed Schmitt's [1997] five SEMs (sense, feel, think, act, and relate) to develop 19 items measured using a seven-point Likert-type scale ranging from "completely disagree" (1) to "completely agree" (7). The 5 "sense" items included "in-store scent," "eloquent interior," "harmonious lighting," "soothing music," and "the ease of shopping." The 4 "feel" items included "pleasure," "freshness," "comfort," and "delight." The 4 "think" items included "interest," "information provision," "image congruity," and "style matching." The 3 "act" items included "revisit intentions," "event participation," and "purchase intentions." The 3 "relate" items included "membership subscription," "the post-purchase use of information services," and "relationships with employees."

3.1.2 Network Attributes

This study defines the strength of ties as the extent to which an individual is connected to his or her e-WOM counterparts. For this, we used three items from Money et al. (1998), including "My network counterparts and I have been acquainted for a long time," "I frequently see my counterparts," and "My counterparts are important to me."

This study defines network centrality as something (or someone) that is most central in the context of social networks. For this, we obtained seven items from Childers [1986], including "When speaking about products, others usually agree with me," "I often persuade others to buy the products that I like," "People to whom I recommend products tend to buy them," "When talking with others, I usually begin the conversation," "While talking about some products, I usually dominate the conversation," "I frequently talk about products with others," and "When talking about products, I usually provide a wide range of information."

Finally, we measured the network range by asking the respondents to identify their network counterparts. For this, we employed the number of categories of network counterparts as a proxy for the network range and used the following 10 possible choices: "family members," "friends," "relatives," "elementary/middle school classmates," "high school classmates," "college classmates," "co-workers," "fellow members of religious communities," "fellow members of hobby clubs," and "significant others."

3.1.3 E-WOM Argument Attributes

We adapted the items for argument quality from Cheung et al. [2008]. These items reflected concepts such as "valid," "appropriate," "up-to-date," "timely," "accurate," "reliable," "necessary," "comprehensive/deep," and "fulfilling needs." We considered outbound, not inbound, e-WOM communication because we asked the respondents to complete the questionnaire based on their recent shopping experiences that they shared with others.

This study defines argument quantity as the quantity of online information one delivers to convey one's thoughts and experiences. For its operationalization, we adapted four items from Anderson [1998] and Bansal and Voyer [2000]. These items included, in ascending order of the quantity of online information, "I rarely tell others online what experience I have," "I tend to tell others online exactly what I experience," "I tend to tell others online what I experience together with my subjective opinions," and "I tell others online what I experience as well as what I hear from others around me."

3.2 Methods

3.2.1 Sample

We pretested the questionnaire with 30 undergraduate students to eliminate those items lacking semantic clarity and those judged to be redundant or too difficult to comprehend. After the pretest, we surveyed 280 undergraduate students from a major university in Seoul, Korea. We excluded 31 responses for missing data and thus had a final sample of 249 responses for the analysis. For data refinement and hypothesis testing, we employed SPSS 18.0.

Among the 249 respondents, 123 (51%) were male. In addition, 201 (82%) were in their twenties, 20 (8%) were in their thirties, 15 (6%) were in their forties, and 5 (2%) were 50 and over. Further, 170 (69%) were students, 57 (23%) were employees, 12 (5%) were self-employed workers, and 5 (2%) were professionals.

3.2.2 Experimental Design

To examine the effects of the type of presentation and the type of product on e-WOM adoption, we conducted an experiment in which we exposed the participants to different types of argument presentations and products, measuring their attitudes toward e-WOM arguments and their adoption intentions.

Before the experiment, we conducted a pilot study to select appropriate products. Through a focus group, we asked 10 undergraduate students to select five products representing various levels of involvement (high/low). We then asked them to reselect a set of products from a product pool based on their product familiarity and interest. High-involvement products included a notebook computer, a desktop computer, a digital camera, a mobile phone, and an MP3 player, and low-involvement products included a ballpoint pen, a tube of toothpaste, a pair of shoes, beer, a bottle of shampoo, a pair of jeans, and an exercise machine. Based on the results, we selected a digital camera (DSLR) and an exercise machine (slider). We then devised a set of arguments pertaining to these two products. Therefore, we considered a 2 (product type: high vs. low

involvement) x 2 (presentation type: text vs. text/image) factorial design to test the hypotheses.

3.2.3 Participants

For the experiment, we considered 280 undergraduate students taking business classes at a university. According to the experimental design, we randomly assigned these students to four groups. Therefore, each group had a total of 70 participants. We selected university students because they tend to be knowledgeable about the Internet and thus pay close attention to e-WOM arguments before purchasing products. In addition, university students represent an appropriate sample in terms of controllability because we conducted the experiment in a computer lab (Yoon, 2000). The participants were given extra credit for their participation.

3.2.4 Experimental Procedure

We invited the participants to a computer lab and instructed them to evaluate e-WOM arguments about the DSRL camera and the stomach exercise machine for product review purposes. In addition, we asked them to mentally simulate the purchase situation by internalizing their personal needs. We then led the participants to a specific website that provided e-WOM stimulus materials and product reviews. They then read and evaluated arguments for the assigned product based on their quality, credibility, and referability and indicated their intention to adopt the arguments as well as their purchase intentions toward the product.

We conducted all four experiments with an interval of five hours over the course of two days. The first experiment was for the DSRL camera and provided a text-only argument. The second experiment was for the exercise machine and provided a text-only argument. The third experiment was for the DSRL camera and provided a text/image argument. Finally, the fourth experiment was for the exercise machine and provided a text/image argument. We instructed the participants to complete the self-administered questionnaire after viewing the stimulus. We obtained the images of products from a shopping mall site (their brand identification was removed). For text-only arguments, we employed actual comments posted by buyers on the site's product review board to maximize the authenticity of arguments. For balanced product reviews, we provided the participants with an equal number of positive and negative comments. In addition, in terms of the complexity and functionality of the products, we differentiated the number of arguments, assigning two positive and two negative arguments to the exercise machine while assigning three positive and three negative arguments to the digital camera, the more functional product.

4.   Results

4.1   Data Refinement

We conducted two sets of exploratory factor analyses (EFAs): one for the survey items and the other for the items for the online experiment. According to the results for the five SEMs (sense, feel, think, act, and relate; a total of 19 items), the attributes of social networks (the strength, centrality, and range of ties), and the attributes of e-WOM arguments (quantity/quality), two "think" items, one "relate" item, one "act" item, and one item for network centrality had loadings below .5, and therefore we excluded these items. The second EFA produced three SEMs ("feel/think," "act/relate," and "sense"), e-WOM quantity, e-WOM quality, network centrality, and the strength of ties.

We conducted the same EFAs for the items for the online experiment and found that the three attributes of e-WOM arguments (quality, credibility, and referability) and e-WOM adoption were valid uni-dimensional factors.

Table 1: Reliability and Validity Results for Items for Questionnaire and Experiment

Method	Factor	# of Items	Eigenvalue	Cumulative Variance (%)	Cronbach's Alpha
Questionnaire	WOM quality	8	4.815	14.160	.897
	Feel & think	6	3.704	10.894	.885
	Network centrality	6	3.553	10.451	.843
	Act & relate	4	2.885	8.486	.794
	Sense	4	2.738	8.053	.805
	Network tie strength	3	2.418	7.113	.858
	WOM quantity	3	2.105	6.192	.756
	Total	34		65.349	
Experiment	Argument credibility	4	2,834	25.765	.850
	Argument quality	4	2.671	24.281	.820
	Argument referability	3	2.000	18.178	.759
	WOM adoption	2	1.628	14.174	.771
	Total	13		81.398	

As shown in Table 1, all factor loadings exceeded .5, indicating sufficient construct validity. In addition, Cronbach's alpha exceeded .7 for all constructs, indicating sufficient internal consistency.

For the two sets of extracted factors, we conducted correlation analyses to determine nomological validity and found that all correlation coefficients showed expected signs. In addition, all coefficients were less than 1.0 at the .05 level, indicating sufficient discriminant validity.

4.2   Hypothesis Testing

To test H1, which predicted a significant relationship between consumers' in-store shopping experience and argument attributes (quantity/quality), we employed multiple regressions by using the three extracted factors (1st part of Table 2). The "act/relate" factor had significant effects on the quantity and quality of e-WOM communication at the .01 level, suggesting that those individuals with revisit intentions or those who participate in store events or are store members are more likely to engage in e-WOM communication. In addition, the "sense" factor had a significant effect on the quantity of e-WOM communication at the .05 level, suggesting that individuals' sensory experience while shopping can have considerable influence on their intention to engage in e-WOM communication. Overall, these regression results provide partial support for H1. The results for the attributes of social networks indicate that network centrality had significant effects on the quantity and quality of e-WOM communication at the .01 level (2nd part of Table 2), providing support for H2a. On the other hand, the strength of network ties had a significant effect only on the quantity of e-WOM, providing partial support for H2b. The network range had no significant effects on the quantity and quality of e-WOM communication at the .01 level, providing no support for H2c.

Table 2: Regression Analysis of Effects of SEMs and Network Attributes on E-WOM Communication

Independent Var	Mean	Dep Var= WOM Quantity			Dep Var= WOM Quality		
		Beta	t	Sig (p)	Beta	t	Sig(p)
(Constant)		2.749	9.242	.000	3.251	13.287	.000
Sense	4.173	.134	2.102	.038	.086	1.289	.198
Feel & Think	4.609	.104	1.380	.169	.147	1.860	.064
Act & Relate	4.837	.311	4.633	.000	.194	2.761	.006
Model Fit		F=23.091 (p=.000) R^2=.202, adj R^2=.194			F=12.817 (p=.000) R^2=.123, adj R^2=.114		
Independent Var	Mean	Dep Var= WOM Quantity			Dep Var= WOM Quality		
		Beta	t	Sig (p)	Beta	t	Sig(p)
(Constant)		2.069	4.725	.000	2.673	7.819	.000
Centrality	4.544	.375	6.812	.000	.417	7.600	.000
Tie Strength	5.814	.158	2.844	.005	.047	.854	.394
Range	3.155	.063	1.135	.258	.067	1.209	.228
Model Fit		F=19.633 (p=.000) R^2=.178, adj R^2=.169			F=20.558 (p=000) R^2=185, adj R^2=.176		

To examine the effects of the type of message presentation on e-WOM adoption, we conducted an independent-sample t-test. Based on dual coding theory, H3 predicted that text/image presentations would be more likely to induce e-WOM adoption than text-only ones. The results indicate significant differences between the two types of presentations in terms of the evaluation of the three argument attributes and adoption intentions. More specifically, as shown in Table 3, text/image presentations were more likely to induce argument quality (mean diff= -.942, p=.000), argument credibility (mean diff= -.339, p=.000), argument referability (mean diff= -.323, p=.000), and e-WOM adoption (mean diff= -.942, p=.000) than text-only presentations, providing support for H3.

Table 3: Differences in E-WOM Evaluation and Adoption Based on Presentation Type

	Experimental Group	N	Mean	SD	Mean Diff (a)-(b)	t	Sig (p) 2-tailed	Levene covariance test F	Levene covariance test Sig (p)
Argument Quality	(a) Text	140	3.082	0.409	-.942	-21.969	.000**	13.143	.000
	(b) Text & Picture	140	4.025	0.300					
Argument Credibility	(a) Text	140	3.460	0.638	-.339	-4.657	.000**	1.808	.180
	(b) Text & Picture	140	3.800	0.579					
Argument Referability	(a) Text	140	3.255	0.593	-.323	-4.457	.000**	0.197	.657
	(b) Text & Picture	140	3.578	0.619					
WOM Adoption	(a) Text	140	3.403	0.578	-.492	-7.726	.000**	13.658	.000
	(b) Text & Picture	140	3.896	0.485					

$**p < 0.05$, $*p < 0.1$.

To examine the effects of the type of product on argument adoption, we conducted an independent-sample t-test. The results indicate significant differences between the two types of products in terms of argument quality (mean diff= -.175, p=.013), argument credibility (mean diff= -.735, p=.000), argument referability (mean diff= -.509, p=.000), and argument adoption (mean diff= -.507, p=.000). That is, the digital camera (the more functional product) was more likely to induce a favorable evaluation of e-WOM arguments and adoption intentions. Therefore, these results provide support for H4.

Table 4: Differences in E-WOM Evaluation and Adoption Based on Product Type

	Experimental Group	N	Mean	SD	Mean Diff (a)-(b)	t	Sig (p) 2-tailed	Levene covariance test F	Levene covariance test Sig (p)
Argument Quality	(a) Exercise machine	140	3.466	0.629	-.175	-2.493	.013**	3.914	.049
	(b) Digital camera	140	3.641	0.542					
Argument Credibility	(a) Exercise machine	140	3.262	0.515	-.735	-11.973	.000**	2.566	.110
	(b) Digital camera	140	3.998	0.512					
Argument Referability	(a) Exercise machine	140	3.162	0.662	-.509	-7.433	.000**	15.135	.000
	(b) Digital camera	140	3.671	0.468					
WOM Adoption	(a) Exercise machine	140	3.396	0.564	-.507	-8.000	.000**	11.979	.001
	(b) Digital camera	140	3.903	0.494					

$**p < 0.05$, $*p < 0.1$.

5. Discussions and Implications

In this study, we investigated the effects of various attributes of social networks and consumers' in-store shopping experiences on the attributes of e-WOM communication (quantity/quality). In addition, we conducted a separate experiment to investigate the effects of the type of argument presentation and the type of product on the evaluation and adoption of e-WOM arguments. The results for H2 and H3 indicate that some types of shopping experiences were more likely to influence e-WOM communication than others. More specifically, among the three experiential factors, the act/relate" factor was most likely to influence both the quantity and quality of e-WOM arguments. This is noteworthy in that Schmitt (1999) identified these two experiential modules (act and relate) as social experiences while referring to the remaining three (sense, feel, and think) as personal experiences, suggesting that some experiences take place in personal or social contexts depending on the level of experiential interactions. According to this dichotomous classification, social experiences are more likely to facilitate e-WOM diffusion than personal ones because e-WOM communication is basically a social engagement that channels information online, which requires bilateral or multilateral communication counterparts.

The results demonstrate the usefulness of developing e-WOM proliferation strategies for retail stores based on Schmitt's (1999) SEMs. For instance, if a store manager wants to disseminate high-quality WOM arguments online, then he or she should implement

"act/relate" strategies by allowing shoppers to "act and relate" freely inside the store. This can be achieved by staging special promotional events or increasing the level of interactions between shoppers and employees. In addition, the store manager should create a store atmosphere that stimulates shoppers' sensory experiences to increase the quantity of e-WOM arguments. This can be done by upgrading the store's physical features such as its lighting, interior decoration, and background music.

The results for H2a, H2b, and H2c indicate that, among the three attributes of social networks, network centrality was most likely to influence both the quantity and quality of e-WOM arguments. This suggests that, to a large extent, consumers' shopping experiences, just like any other experiences involving product use, are best conveyed to others when shoppers are well connected to other shoppers and are opinion leaders playing a role as an "information hub" or a "gatekeeper." This suggests that retail managers should identify and target these market influentials (i.e., those who actively disseminate store-related information) to influence potential customers.

The type of argument presentation had significant effects on all three argument attributes (quality, credibility, and referability) as well as on argument adoption, providing support for H3. This suggests that e-WOM arguments are more effective when they are presented using both images and text. That is, when a product review consists of actual product images as well as comments, the audience is more likely to evaluate the review favorably and thus adopt the argument in the review. This verifies the positive effects of image-based arguments (as postulated by dual coding theory) and has important implications for online shopping firms and portals whose consumers post comments on products they buy online. For example, managers of online stores should encourage users to post comments with actual pictures on product review boards. The results for H4 indicate that the digital camera, a highly functional product with many functions, was more likely to induce favorable responses to e-WOM arguments and argument adoption than the exercise machine. This result is somewhat consistent with the premise of elaboration likelihood model theory, which posits that highly involved consumers are more likely to be motivated to process product-specific information; base their attitudes on product attributes; and form persistent and stable attitudes toward products (Petty & Caccioppo, 1986). That is, potential buyers are more likely to form favorable attitudes toward product information for high-involvement products such as a digital camera than for low-involvement products such as an exercise machine. These results suggest that managers of online stores should differentiate between e-WOM diffusion strategies based on the characteristics of products and the level of their involvement.

5.1 Suggestions and Limitations

This study contributes to the literature by examining the effects of various attributes of social networks (the strength, centrality, and range of ties) and consumers' in-store shopping experiences on consumers' e-WOM behavior (quality/quantity) and argument adoption. The results provide new insights into why individuals' adoption of e-WOM communication varies according to the type of product/presentation. Given that argument adoption depends largely on the type of communication method, future research should investigate the effects of the e-WOM platform on its adoption by employing a wider range of communication methods. For instance, future research should compare various types of WOM, including not only e-WOM but also offline ones such as face-to-face communication. In addition, the product type can be linked to network attributes. For example, it may be worthwhile to determine whether network centrality influences e-WOM adoption when individuals deal with functional (vs. hedonic) products through certain communication platforms (e.g., SNSs vs. emails). Given that text/image presentations can help facilitate e-WOM adoption, future research should determine whether other types of presentations make a difference. For example, animated content (e.g., video presentations) may be a useful communication tool for delivering personal messages.

Although this paper separately addressed the effects of product type and message presentation separated on e-WOM adoption, the future study may as well look into the possibility of interaction between the two study variables. In other words, it would be interesting to see whether the effects of message presentation may be moderated by the level of product involvement. If interaction exists between the two, this result will provide online marketers with useful information as to the optimal e-WOM communication strategies.

Another research suggestion relates to linking in-store experiences and network structures in order to examine whether network structure moderates the effects of shopping experiences on WOM behavior. Although some literature addressed these effects of shopping experiences and network structure separately, there is no extant literature which investigates the moderating role of network structure [Yoon & Han 2011].

Finally, to increase the generalizability of this study's results, future research should consider a wider range of samples by including individuals such as housewives and employees.

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