Association for Information Systems AIS Electronic Library (AISeL)

ICIS 2010 Proceedings

International Conference on Information Systems (ICIS)

2010

THE EFFECT OF PRICE PRESENTATION, SALES RESTRICTIONS, AND SOCIAL NETWORKS ON CONSUMER EWOM ACTIVITIES: TWO-PHASE VALIDATION

Louis Yi-Shih Lo Central Taiwan University of Science and Technology, 106928@ctust.edu.tw

Sheng Wei Lin
National Applied Research Laboratories, larman520@gmail.com

Follow this and additional works at: http://aisel.aisnet.org/icis2010 submissions

Recommended Citation

Lo, Louis Yi-Shih and Lin, Sheng Wei, "THE EFFECT OF PRICE PRESENTATION, SALES RESTRICTIONS, AND SOCIAL NETWORKS ON CONSUMER EWOM ACTIVITIES: TWO-PHASE VALIDATION" (2010). *ICIS* 2010 Proceedings. 49. http://aisel.aisnet.org/icis2010_submissions/49

This material is brought to you by the International Conference on Information Systems (ICIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

THE EFFECT OF PRICE PRESENTATION, SALES RESTRICTIONS, AND SOCIAL NETWORKS ON CONSUMER EWOM ACTIVITIES: Two-Phase Validation

Research-in-Progress

Louis Yi-Shih Lo

Dept. Management Information Systems Central Taiwan University of Science and Technology Taichung City 40601, Taiwan, R.O.C. 106928@ctust.edu.tw

Sheng Wei Lin

Science and Technology Policy and Information Center National Applied Research Laboratories Taipei 106, Taiwan, R.O.C. larman520@gmail.com

Abstract

Word-of-mouth (WOM) is recognized as an effective communication channel among consumers. The Internet provides consumers with richer sales information and more online associates than do brick-and-mortar stores but makes complex the assessment of the shaping of electronic WOM (eWOM) intention and return on eWOM. Thus, we will conduct two experiments to examine the shaping of eWOM intention and return on eWOM. The first experiment explore the eWOM broadcasting from the perspective of eWOM senders in a laboratory setting, and the second experiment will validate the eWOM model from the perspective of both message senders and receivers. The first experiment will allow us to control for variables that are difficult to control in the field and examine the mechanisms behind eWOM intention. The preliminary validation of the research model will increase its explanatory power in the field and allow us examine the value of eWOM associated with eWOM intention.

Keywords: eWOM, social network, deal evaluation, price presentation, sales restriction

Introduction

The word-of-mouth (WOM) industry grew from 3 to 350 corporate members between 2004 and 2007 (WOMMA 2007). WOM is defined in this study as a consumer-dominated channel for broadcasting product or service information, where senders are independent of the market (Brown et al. 2007). Consumers often value WOM information more highly than firm-initiated communications because WOM senders are believed to have neither an underlying motive nor an incentive for their referral (Grewal et al. 2003). WOM is a consumer behavior that includes information searching, assessment, and decision making (Money et al. 1998; Silverman 2001). Katz and Lazarsfeld (1955) found that WOM was the most important information source for some domestic items, while Godes and Mayzlin (2004) found that it is an important source of information affecting decision making related to the adoption of new technology, such as laptop computers. Therefore, we can infer that WOM influences consumer purchase behavior.

Electronic word of mouth (eWOM) is the communication of product or service information through Internet-based technology. The Internet allows people to have more social relationships than ever before and to exchange information at a low cost. It is important to understand clearly how the information dispersion intention of individuals is shaped by their online social relationships. Hence, this study aims to explore the interaction between eWOM intention and online social relationships.

Price presentation is one of the primary means by which retailers communicate with consumers (Lichtenstein et al. 1991). Prior research shows that the price presentation format influences purchase intention (Grewal et al. 2007; Harlam et al. 1995). Lichtenstein, Burton, and Karson (1991) argued that retailers attempt to influence the internal reference price and subsequent deal evaluation of consumers through the price presentation format. Price presentation includes several price-related variables, among which we investigate the external reference price.

Sales restrictions constrain the ability of consumers to take advantage of promotions. They help to activate mental judgments about promoted products, which often results in the perception of good value (Inman et al. 1997), which in turn influences WOM (Durvasula et al. 2004; Gruen et al. 2006; Keiningham et al. 2007b; McKee et al. 2006). Although research has been conducted into the effect of sales restrictions on deal evaluation, gaps remain. Variables such as time or quantity limit demonstrate little obvious variation within or across studies. There is a need for further investigation into the effect of these variables on deal evaluation (Krishna et al. 2002). Therefore, this study will simultaneously test sales restrictions and price presentation in an experimental manipulation to investigate their effect on deal evaluation and eWOM activities.

The extant research indicates that the effect of eWOM depends on the social relationships between an actor and his or her associates (Godes & Mayzlin, 2004). Social relationships have a network-based structure that is characterized by a number of properties, including density and centrality, and are ego based, focusing on the individual's position and connections in the network (Burt 1987; Granovetter 1973; Weimann 1982). Previous research has mainly investigated the effect of the interaction between individuals on eWOM intention, and ignored the effect of the relationship between an individual and a website on eWOM intention. Hence, this study intends to examine the influence of both members of an online social unit, for example, MSN or Yahoo! Messenger and well-known online retailing websites, which account for 95% of the total online retail market share, on the deal evaluation of individuals. The influence of social relationships on deal evaluation underlines the importance of exterior resources in deal evaluation. Social relationships could be a catalyst of eWOM; therefore, this study intends to explore the eWOM intention of individuals through their position in an online social unit.

Research suggests that if individuals perceive that a deal is valuable, then they may be willing to spread the information that they have received on the product (Hartline et al. 1996). However, prior research has assessed eWOM intention without measuring eWOM behavior and its follow-up eWOM influence. Although intention is often viewed as an important predictor of actual behavior, a number of studies (e.g., Mittal et al. 2001; Morwitz et al. 2001) have found that behavior is not always consistent with intention, let alone measuring eWOM influence. Thus, this study intends to measure simultaneously sender's eWOM intention and eWOM influence on receiver's purchase behavior which is denoted eWOM value for short.

The main purpose of this study is to determine whether price presentation and sales restrictions significantly influence eWOM intention or value. Properties of online social networks will be incorporated in the research model to test their moderating effect. Our research questions are as follows.

Do price presentation and sales restriction strategies, which are used by brick-and-mortar stores, affect eWOM intention through deal evaluation in online settings?

Is the effect of price presentation on deal evaluation moderated by the properties of social networks?

Is the effect of sales restrictions on deal evaluation moderated by the properties of social networks?

Is the effect of deal evaluation on eWOM intention moderated by the properties of social networks?

Does price presentation affect eWOM value through deal evaluation?

Do sales restrictions affect eWOM value through deal evaluation?

To answer these questions, this study will conduct two experiments. In the first one, we will explore the research model from the perspective of eWOM senders in a laboratory setting, and in the second one, we aim to validate the eWOM model from the perspective of both message senders and receivers using a well-known consumer to consumer (C2C) website over the course of one year. The first experiment will allow us to control for variables that are difficult to control in the field and to explore the mechanisms behind eWOM intention. The research model will then be tested in another context to not only verify its explanatory power but also examine the value associated with eWOM intention.

Theoretical Foundation and Hypotheses

eWOM:an extension of WOM

Electronic word of mouth (eWOM) is an extension of WOM and a compound of WOM and Internet. Traditional WOM was regarded as one-to-one and face-to-face (synchronous) communication between people about products and services in the earlier years (Carl 2006). Information technology digitizes word of mouth and provides several types of electronic media to disseminate digitized WOM, and the electronic media could be categorized in terms of communication scope and level of interactivity (Litvin et al. 2008). Traditional WOM is spread through interpersonal contact, a synchronous and one-to-one interaction, and the effects of WOM on consumers could be applied to studies employed instant messenger as a platform of message dissemination. However, due to privacy concern and difficulty to access log files of personal message, few eWOM studies employed instant messenger; instead, a number of eWOM studies conducted through asynchronous electronic media, such as emails (Huang et al. 2009), websites (Lee et al. 2009a; Lee et al. 2009b), blogs and virtual communities (Hung et al. 2007). However, the difference in level of interactivity and communication scope across electronic media limit the application of traditional WOM findings to eWOM studies (Lee et al. 2009b). In addition to borrow theory and finding from traditional WOM research, eWOM impact on consumers are in need of further investigation.

Price Presentation

Price presentation is one of the primary means by which retailers communicate with consumers (Lichtenstein et al. 1991). Price presentation involves the price format, external reference price, monetary cues, store price judgment related to the price distribution, and price partitioning. Among these variables, the external reference price is most frequently encountered by consumers in brick-and-mortar businesses, such as Costco or Wal-Mart, and online retail stores. Hence, it is the focus of this study.

The external reference price is defined as the price against which consumers compare the offered price of a product or service. Biswas, Pullig, Krishnan, and Burton (1999) found that consumer evaluation is influenced by external price information within a plausible price range, which determines the external reference price and is valuable for judgment and reference. Lichtenstein et al. (1991) employed assimilation-contrast theory to detail the pivotal role of price range plausibility. They proposed that price presentation influences the internal price standard of consumers in three stages. First, retailers post an external reference price at or close to the upper limit of the perceived normal marketplace price range. Then, consumers perceive the external reference price as plausible and assimilate it. As a result, the internal price standard of consumers shifts toward the external reference price, which increases the likelihood of a favorable deal evaluation (Lichtenstein et al., 1991). However, if the external reference price vastly exceeds the upper limit of the normal marketplace price range, then consumers will contrast the price with an

internal price standard and assimilation will not take place. Then, an inverted U-shape relationship is found between the updated price expectations of consumers and the difference between the external reference price and initial price expectations (Kopalle et al. 2003; Lichtenstein et al. 1991). However, although the internal price standard of consumers shifts toward the external reference price and the latter influences deal evaluation, assimilation-contrast theory is unable to account for the influence of the change in the external reference price on the variation in deal evaluation. Niedrich, Sharma, and Wedell (2001) conducted experiments to compare the predictive capability of three theories of external reference price commonly adopted in prior research. Their findings indicated that range-frequency theory is the better predictive theory in terms of price attractiveness, response time, and price recognition to consumers, so range-frequency theory could best account for the idea that consumers store, retrieve, and use a rich array of price information in the process of deal evaluation (Niedrich et al. 2001). Their findings, which were based on experiments in which subjects were exposed to a series of stimuli presented sequentially on a computer screen, are applicable to online stimuli in the process of price comparison.

Range-frequency theory holds that the judgment of any particular stimulus (external reference price) represents a compromise between two principles of judgment. Range theory maintains that subjective judgment reflects the location of the target stimulus (offered price) relative to the most extreme values defining the relevant context, while frequency theory holds that subjective judgment is influenced by the rank of the target stimulus within the contextual set of stimuli (Niedrich et al. 2001; Parducci et al. 1986). Consequently, the subjective judgment (J) of the target stimulus is formulated as

$$J = wR + (1 - w)F, \tag{1}$$

where R is the proportion of the range values between the target and the minimum stimulus to the range values between the maximum and the minimum stimuli in the context of judgment; F is the proportion of the accumulated frequency values below the target stimulus to the full frequency value; and w is the weighting parameter describing the compromise between the two principles, and assigned a value between zero and one (Parducci et al. 1986). Thus, subjective judgment (J) takes on a value between zero and one. Niedrich et al. (2001) related subjective judgment to deal attractiveness based on the assumption of a linear relationship between judgment and attractiveness rating, where the higher is the subjective value, the more attractive is the deal to consumers.

To validate range-frequency theory, Niedrich et al. (2001) initially exposed subjects to more than 20 designated prices, which were characterized by various mean values and skewness distributed based on the perceived range and accumulated frequency of external reference prices. After viewing the target prices, subjects were asked to evaluate price attractiveness against the perceived range or accumulated frequency distribution. Rang-frequency theory is valid if the price attractiveness perceived by subjects is consistent with the predictions based on both the perceived range and accumulated frequency distribution of external stimuli. Based on the treatment design and findings of Niedrich et al. (2001), this study will test the following hypothesis of the relationship between price presentation and deal evaluation.

Hypothesis 1: Price presentation is significantly related to deal evaluation.

Sale Restrictions

Sale restrictions are scarcity tactics, which limit the consumer's freedom to purchase products (Inman et al. 1997). Tactics include quantity limits (e.g., "Limit of two items per customer"), that is, purchase quantity restriction; and time limits (e.g., "Offer expires on May 1"), that is, restriction of the time period during which the consumer can buy the product.

Such restrictions stimulate judgments about whether the offering is favorable or unfavorable (Inman et al., 1997). Commodity theory has been used to explain the effect of scarcity tactics (Brock 1968). This theory holds that when a commodity becomes unavailable, either because it is in short supply or because of sale restrictions, consumers are more motivated to buy it. Bozzolo and Brock (1992) found that the perception of message unavailability enhanced consumer motivation to hear and process such information, which led to a favorable response toward the restricted product.

Reactance theory holds that when one's freedom to choose a desired object is limited or threatened, that object becomes more attractive. Brehm, Stires, Sensenig, and Shaban (1966) found that product unavailability had a positive effect on product attractiveness, while Clee and Wicklund (1980) found that constraints affect consumer

behavior. In this study, we focus on the effect of time and quantity limits, especially remainder alerts. Thus, the following hypothesis is proposed.

Hypothesis 2: Sales restrictions are positively related to deal evaluation.

Deal Evaluation and eWOM Activities

Past research indicates that sale restrictions signal to a consumer that a deal is a good deal, which increases purchase intention (Inman et al., 1997). Deal evaluation is a cognitive judgment about whether the offering is favorable or unfavorable, which is similar to the notion of perceived value, namely, the trade-off between customer sacrifice and benefits received in return. Hartline and Jones (1996) found that perceived value plays an important role in consumer behavioral intention, especially WOM intention. Several studies show that perceived value influences WOM (Durvasula et al. 2004; Gruen et al. 2006; Hartline et al. 1996; Keiningham et al. 2007a; McKee et al. 2006). Hartline and Jones (1996) contended that consumers who believe that the product that they receive is of a high value or a good deal are more likely to be loyal customers and recommend it to others in their group. Based on the foregoing discussion, the following hypotheses are proposed.

Hypothesis 3: Deal evaluation is positively related to eWOM intention.

Hypothesis 4: Deal evaluation is positively related to eWOM value.

Moderating Effects of Properties of Social Networks

A social network is conceptualized as a virtual network made of nodes and joined together by ties (Panzarasa et al. 2009). Social network analysis is an approach used to assess the impact of individual-level and group-level factors on outcomes resulting from social interactions. The former include the node position within the organization, tie frequency, and strength between nodes in the same group, whereas the latter include interaction density and exchange distribution within the group. This study will consider properties of social networks as moderating factors in our examination of the effect of actor-alter interactions and exchanges within a social unit on consumer deal evaluation and eWOM intention.

Coping and Influencing Mechanisms

Following Sykes, Venkatesh, and Gosain (2009), we draw upon coping and influencing mechanisms to investigate the claims that social network properties affect consumer judgment and intention. The evaluation of a deal requires access to exterior resources to alleviate uncertainty to reach an ultimate subjective judgment; thus, consumers seek advice and suggestions and participate in knowledge sharing and learning through social ties, which are termed coping mechanisms (Sykes et al., (2009). Wong (2008) proposed that there are two types of social referents whose knowledge or advice are valued by individuals: cohesive and structurally equivalent referents. A cohesive referent is defined as an alter with whom an actor has a direct tie, and is influential because the frequency of actor-alter interaction aids contagion, whereas the structurally equivalent referent refers to an alter who has personal attributes and a pattern of ties similar to those of the actor (Wong 2008). Ibarra and Andrews (1993) explored the relationship between social network structure and employee perceptions, and their findings suggested that network proximity corresponding to structurally equivalent referents significantly shapes job-related perceptions. Hence, coping mechanisms including seeking advice, suggestions, or knowledge from cohesive or socially structurally equivalent referents provide access to vital resources and thus shape deal evaluation. The level of their influence on such evaluation increases with an increase in the level of cohesion or structural similarity between an actor and his or her referent.

In evaluating a deal, a consumer forms an opinion based on its advantages and disadvantages and through participating in a discussion with others who are interested in the deal. Hence, help receivers in the deal evaluation stage are transformed into help givers and initiators in the WOM stage. Sykes et al. (2009) argued that giving help to others to foster one's influence on a system's configuration and deployment is an influencing mechanism. Likewise, we argue that contributing advice, opinions, and knowledge to others through eWOM to persuade others is an influencing mechanism. Sykes et al. (2009) also contended that the level of one's willingness to give help increases with an increase in the centrality of one's position within a social network. Hence, we infer that eWOM intention increases with the centrality of the individual's position within a social network.

Cohesive referents and structurally equivalent referents in deal evaluation and the centrality of one's position in a social network correspond respectively to network density, homophily, and centrality, which are three important characteristics of the patterns of social exchanges in social units.

Ego Density

Network density describes the connectedness of a network and is defined as the ratio of the actual number of ties in a network to the maximum possible number of ties (Sykes et al. 2009). In this study, we consider egocentric network density, which is related to the individual rather than the network as a whole, because employing the census approach to obtain the entire network density in an online environment is impractical and uneconomical. Hanneman and Riddle (2005) argued that an egocentric network still allows a good picture to be obtained of the local, or neighborhood, network. However, egocentric network density represents only the connectedness between an actor and alters and ignores the weight of the relationships; hence, Sykes et al. (2009) introduced value network density, which refers to whether an actor has access to the perceived important social referents within social units and thus affects deal evaluation. Based on the above discussion, we propose the following hypotheses.

Hypothesis 5: The interaction between price presentation and network density is significantly related to deal evaluation.

Hypothesis 6: The interaction between sales restrictions and network density is positively related to deal evaluation.

Homophily

Homophily is the degree to which an actor and alters are similar in terms of certain individual attributes, such as age, sex, education, and social status (Brown et al. 1987). Homophilous individuals are more likely to interact with each other than heterophilous ones (Brown et al. 1987), which is known as the like-me principle (Laumann 1966), because having similar personal characteristics implies effortless interaction, which is the premise of building regular interaction. The increase in the frequency of interaction decreases the possibility of misunderstanding and leads eventually to increased levels of familiarity and even trust (Kleijnen et al. 2009). Hence, deal evaluation among homophilous individuals is more likely to be consistent than that among heterophilous ones, based on which the following hypotheses are proposed.

Hypothesis 7: The interaction between price presentation and homophily is significantly related to deal evaluation.

Hypothesis 8. The interaction between sales restrictions and homophily is positively related to the deal evaluation.

Centrality

Network centrality represents the inherently relational power structure in a social unit (Hanneman et al. 2005). Individuals positioned centrally in a network face fewer constraints and enjoy more opportunities than those who are on the periphery and thus may extract better bargains and have greater influence in exchanges (Hanneman et al. 2005). Balkundi and Kilduff (2006) pointed out that individuals centrally positioned in a formal structure are not guaranteed to be influential unless they reciprocate many of the relationships in which they are involved, which is known as informal network centrality. This study deals with the relationship between network centrality and eWOM intention in the online context, which is characterized by informal structures. Those who are centrally located in a network are posited to be more willing to conduct eWOM to retain their position and influence, which leads to the following hypothesis.

Hypothesis 9: The interaction between deal evaluation and centrality is positively related to eWOM intention.

The proposed research will comprise two stages. In the first stage, a laboratory experiment will be carried out. The research design of the second stage is inspired by the field experiment design of Gregg and Walczak (2008), who studied the relationship between e-images on websites and actual purchases rather than intention as a proxy for purchase behavior. In the following sections, we discuss the research method of each stage.

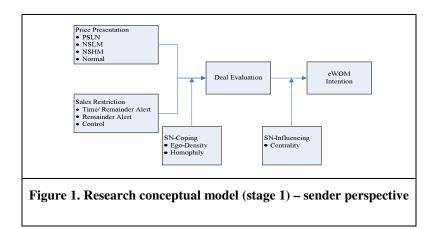
Stage 1: Lab Experiment

Research Method

A laboratory experiment will be conducted in the first stage of this study. This experiment aims to investigate whether price presentation and sales restrictions drive eWOM intention through influencing deal evaluation. We will also explore whether social network coping (e.g., density, homophily) and social network influencing (e.g., centrality) mechanisms moderate the mediating process. Figure 1 shows the conceptual model in terms of eWOM sender perspective, which is subject to verification.

Experiment Design

The experiment will adopt a completely randomized 2 (Price presentation) x 2 (Sale restrictions) between-subjects factorial design. The subjects will be randomly assigned to the different experimental conditions. The subjects will be 300 undergraduate students with Internet shopping experience.



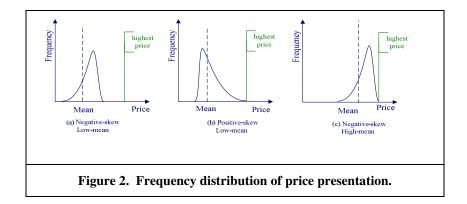
Price Presentation

The price presentation design draws on that of Niedrich, et al (2001), which includes four levels of price distribution: negative-skew low-mean (NSLM), positive-skew low-mean (PSLM), and negative-skew high-mean (NSHM) distribution and normal frequency distribution (NFD). The skewness indicates the non-symmetric degree to which prices are distributed along their profile. In negative-skew high-mean frequency distribution, the left tail is longer and the mass of the distribution is concentrated on the right, and the mean price is 30% less than the highest reference price in the profile (see Figure 2(a)). In positive-skew low-mean frequency distribution, the right tail is longer and the mass of the distribution is concentrated on the left, and the mean price is 30% lower than the highest reference price in the profile (see Figure 2(b)). In negative-skew high-mean distribution, the mean price is 10% off compared to the highest reference price in the profile while the rest of distribution remains the same as that of the negative-skew low-mean distribution (see Figure 2(c)). In a normal frequency distribution, the mean price is 25% off the highest reference price.

The price information offered by this study to shape the deal evaluation of subjects will be presented initially as a floating tag, which incorporates the price distribution profile, attaching to the offering price. Once the offering price interests subjects and is clicked on, a follow-up webpage will appear with a list including 20 more reference prices collected from well-known websites, with a mark to represent the location of the offering price on the list.

Sales Restrictions

Subjects will be exposed to one of three conditions: no restrictions (control group) or one of the following two experimental conditions – either "Time/Remainder Alert" (i.e., "Available only for a Limited Time – Offer Expires



on September 30th"/"Only Six Left") or only "Remainder Alert" (i.e., "Only Six Left"). The restriction will be in a smaller font size and italicized, and appear on the line below the discount offer, in a manner similar to that typically seen in supermarket pricing.

Procedure

All subjects will be asked to imagine that they need to buy a portable reading device and that the online store is running a promotion for this product. Then they will be directed to the online experiment site. The cover page will randomly display links to twelve different versions of the product advertisement information and related questionnaire, one at a time. Through the page, subjects will be assigned to different experimental conditions and then complete the dependent measures.

To allow us to examine the online social relationships of subjects, the cover page will describe a scenario in which the individual and his or her network members are using a social software, such as Instant Messaging or MSN, which is aimed at enabling the exchange of useful information related to the portable reading device. All subjects will be asked to report that they usually "get help from five close friends" or "get help from five acquaintances," and "get help from well-known business to consumer (B2C) websites." The frequency of interaction between close friends/acquaintances and websites will be denoted "Density", whereas the resources of close friends/acquaintances that he or she perceives important and influential to judgment of deal evaluation will be denoted "Value network density". The interests or values shared among close friends/acquaintances or websites will be denoted "Homophily." The frequency of a subject giving advice or suggestions regarding products or services to five close friends/acquaintances previously reported will be denoted "Network centrality".

Stage 2: Field Experiment

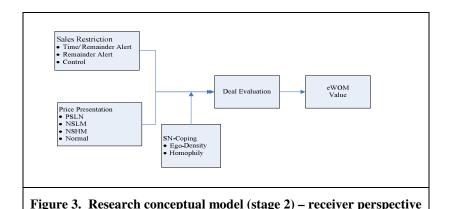
Research Method

The research design for the second stage is a quasi-experimental one (Kerlinger et al. 2000), as the implementation of actual transaction data cannot be observed in a laboratory experiment where intervening variables can be controlled. Therefore, care will be taken to spot potential history factors when analyzing the data.

The empirical study will collect data from actual transactions conducted at a well-known C2C website over one year. This experiment aims to investigate whether price presentation and sales restrictions drive the effect of eWOM value by influencing deal evaluation. We will also explore whether social network coping (e.g., network density and homophily) mechanism moderate the mediating process. Figure 3 shows the conceptual model, which is subject to verification.

Procedure

In the second stage, we will attempt to measure the eWOM value propagated by eWOM intention; thus, the model incorporates two perspectives: that of message senders and that of message receivers (see Figure 3). The eWOM



sender model (Figure 1) will have been verified in the first stage, and so the second stage of the research will focus on verifying the eWOM receiver model (Figure 3); however, eWOM senders will still be necessary to initiate the message flows, and will be recruited by researchers for message broadcasting in the laboratory.

This study will recruit eWOM senders from college students with similar Internet proficiency. The online cover page provided to the subjects will describe a scenario in which the individuals intend to buy portable reading device (e.g. iPAD or Kindle), and it happens to on the clearance list of a trustworthy online store on C2C website. The subjects will be requested to send on-sale information to their network members who are interested in portable reading device and listed in their address book of Windows Live messenger. All attributes of the item on sale are kept identical over the course of the experiment except for the price presentation and sales restrictions. Sales of identical items with the next treatment are spaced at least 7 days apart from the close day of this treatment to avoid confusing message receivers.

The subjects will be asked to report that they usually "get help from five close friends" or "get help from five acquaintances," and "get help from well-known business to consumer websites." The frequency of interaction between close friends/acquaintances and websites will be denoted "Density", whereas the resources of close friends/acquaintances that he or she perceives important and influential to judgment of deal evaluation will be denoted "Value network density". The interests or values shared among close friends/acquaintances or websites will be denoted "Homophily." The frequency of a subject giving advice or suggestions regarding products or services to five close friends/acquaintances previously reported will be denoted "Network centrality." After finishing online questionnaire, the subjects could send an email to five close friends/acquaintances. The email includes an image promotion code, formatted digest of product information, and a hyperlink that will redirect receivers to the webpage in the online store.

The subjects who receive and forward senders' email to their friends/acquaintances without transaction record are denoted "intermediator". They behave more like a sender rather than actual receivers in eWOM dissemination. Intermediators receive an email with an image promotion code linking to our web server. Due to anti-virus function in email software, interconnectors need to approve downloading picture request to access an image promotion code. Out web server managing promotion code will record the request and identify interconnectors (De Bruyn & Lilien, 2008). The webpage of online store provides user-friendly "share" and "send" functions for interconnectors to share with their friends/acquaintances. However, replicating product information on this webpage is forbidden, Thus, interconnectors need to forward product information through "Share" and "Send" functions on this webpage. "Share" function initiates Windows Live Web messenger, so the interconnector could access and select friends/acquaintances in the address book. "Send" function helps forward and record the information regarding the interconnectors and their network members. The forwarded email includes an image promotion code, formatted digest of product information, and a hyperlink that will redirect receivers to the webpage in the online store.

The subjects who receive email and actually transact on our webpage with a valid image promotion code are receivers, and our webpage will record their transaction information. The receivers are required to finish online questionnaires in the eWOM receiver model to waive shipping and handling fees.

References

- Balkundi, P., and Kilduff, M. "The ties that lead: A social network approach to leadership," Leadership Quarterly (17:4), Aug 2006, pp 419-439.
- Biswas, A., Pullig, C., Krishnan, B.C., and Burton, S. "Consumer evaluation of reference price advertisements: Effects of other brands' prices and semantic cues," Journal of Public Policy & Marketing (18:1), Spr 1999, pp 52-65.
- Bozzolo, A.M., and Brock, T.C. "Unavailability effects on message processing: A theoretical analysis and an empirical test," Basic and Applied Social Psychology (13:1) 1992, pp 93-101.
- Brehm, J.W., Stires, L.K., Sensenig, J., and Shaban, J. "The attractiveness of an eliminated choice alternative," *Journal of Personality and Social Psychology* (2) 1966, pp 301-313.
- Brock, T.C. "Implications of commodity theory for value change," in: Psychological foundations of attitudes, A. Greenwald, Brock, T. C., & Ostrom, T. (ed.), Academic, New York, 1968, pp. 243-275.
- Brown, J., Broderick, A.J., and Lee, N. "Word of mouth communication within online communities: Conceptualing the online social network," Journal of Interactive Marketing (21:3), Sum 2007, pp 2-20.
- Brown, J.J., and Reingen, P.H. "Social ties and word-of-mouth referral behavior," Journal of Consumer Research (14:3) 1987, pp 350-362.
- Burt, R.S. "Social contagion and innovation: Cohesion versus structural equivalence," American Journal of Sociology (92:6) 1987, pp 1287-1335.
- Carl, W.J. "What's All The Buzz about? Everyday Communication and the Relational Basis of Word-of-Mouth and Buzz Marketing Practices," Management Communication Quarterly (19:4), May 2006.
- Clee, M.A., and Wicklund, R.A. "Consumer behavior and psychological reactance," Journal of Consumer Research (6) 1980, pp 389-405.
- Durvasula, S., Lysonski, S., Mehta, S.C., and Tang, B.P. "Forging relationships with services: The antecedents that have an impact on behavioral outcomes in the life insurance industry," Journal of Financial Services Marketing (8:4) 2004, pp 314-326.
- Godes, D., and Mayzlin, D. "Using online conversations to study word-of-mouth communication," Marketing Science (23:4), Fal 2004, pp 545-560.
- Granovetter, M. "The strength of weak ties," American Journal of Sociology (78:6) 1973, pp 1360-1380.
- Grewal, D., Iyer, G.R., Krishnan, R., and Sharma, A. "The Internet and the price-value-loyalty chain," Journal of Business Research (56:5) 2003, pp 391-398.
- Grewal, D., and Levy, M. "Retailing research: Past, present, and future," Journal of Retailing (83:4) 2007, pp 447-464.
- Gruen, T.W., Osmonbekov, T., and Czaplewski, A.J. "eWOM: The impact of customer-to-customer online knowhow exchange on customer value and loyalty," Journal of Business Research (59:4), Apr 2006, pp 449-456. Hanneman, R.A., and Riddle, M. "Introduction to social network methods," Riverside, CA, 2005.
- Harlam, B.A., Krishna, A., Lehmann, D.R., and Mela, C. "Impact of Bundle Type, Price Framing and Familiarity on Purchase Intention for the Bundle," Journal of Business Research (33:1), May 1995, pp 57-66.
- Hartline, M.D., and Jones, K.C. "Employee performance cues in a hotel service environment: Influence on perceived service quality, value, and word-of-mouth intentions," Journal of Business Research (35:3), Mar 1996, pp
- Huang, C.C., Lin, T.C., and Lin, K.J. "Factors affecting pass-along email intentions (PAEIs): Integrating the social capital and social cognition theories," Electronic Commerce Research and Applications (8:3), May-Jun 2009, pp 160-169.
- Hung, K.H., and Li, S.Y. "The influence of eWOM on virtual consumer communities: Social capital, consumer learning, and behavioral outcomes," Journal of Advertising Research (47:4), Dec 2007, pp 485-495.
- Ibarra, H., and Andrews, S.B. "Power, Social Influence, and Sense Making: Effects of Network Centrality and Proximity on Employee Perceptions," Administrative Science Quarterly (38:2) 1993, pp 277-303.
- Inman, J.J., Peter, A.C., and Raghubir, P. "Framing the deal: The role of restrictions in accentuating deal value," Journal of Consumer Research (24:1), Jun 1997, pp 68-79.
- Katz, E., and Lazarsfeld, P.F. Personal influence Free Press, Glencoe, IL, 1955.
- Keiningham, T.L., Cooil, B., Aksoy, L., Andreassen, T.W., and Weiner, J. "The value of different customer satisfaction and loyalty metrics in predicting customer retention, recommendation, and share-of-wallet," Managing Service Quality (17:4) 2007a, pp 361-384.
- Keiningham, T.L., Cooil, B., Andreassen, T.W., and Aksoy, L. "A longitudinal examination of net promoter and firm revenue growth," Journal of Marketing (71:3), Jul 2007b, pp 39-51.

- Kerlinger, F.N., and Lee, H.B. Foundations of behavioral research, (4th ed.) Harcourt, Fort Worth, TX, 2000.
- Kleijnen, M., Lievens, A., de Ruyter, K., and Wetzels, M. "Knoowledge creation through mobile social networks and its impact on intentions to use innovative mobile services," Journal of Service Research (12:1), Aug 2009, pp 15-35.
- Kopalle, P.K., and Lindsey-Mullikin, J. "The impact of external reference price on consumer price expectations," Journal of Retailing (79:4) 2003, pp 225-236.
- Krishna, A., Briesch, R., Lehmann, D.R., and Yuan, H. "A meta-analysis of the impact of price presentation on perceived savings," Journal of Retailing (78:2), Sum 2002, pp 101-118.
- Laumann, E.O. Prestige and association in an urban community Bobbs-Merrill, Indianapolis, IN, 1966.
- Lee, J., and Lee, J.N. "Understanding the product information inference process in electronic word-of-mouth: An objectivity-subjectivity dichotomy perspective," Information & Management (46:5), June 2009a, pp 302-
- Lee, M., and Youn, S. "Electronic word of mouth (eWOM) How eWOM platforms influence consumer product judgement," International Journal of Advertising (28:3) 2009b, pp 473-499.
- Lichtenstein, D.R., Burton, S., and Karson, E.J. "The effect of semantic cues on consumer perceptions of reference price ads," Journal of Consumer Research (18:3), Dec 1991, pp 380-391.
- Litvin, S.W., Goldsmith, R.E., and Pan, B. "Electronic word-of-mouth in hospitality and tourism management," Tourism Management (29:3), Jun 2008, pp 458-468.
- McKee, D., Simmers, C.S., and Licata, J. "Customer self-efficacy and response to service," Journal of Service Research (8:3), Feb 2006, pp 207-220.
- Mittal, V., and Kamakura, W. "Satisfaction, repurchase intent, and repurchase behavior: Investigating the moderating effect of customer characteristics," Journal of Marketing Research (38:1) 2001, pp 131-142.
- Money, R.B., Gilly, M.C., and Graham, J.L. "Explorations of national culture and word-of-mouth referral behavior in the purchase of industrial services in the United States and Japan," Journal of Marketing (62:4), Oct 1998, pp 76-87.
- Morwitz, V.G., and Schmittlein, D. "Using segmentation to improve sales forecasts based on purchase intent: Which intenders actually buy," Journal of Marketing Research (29:4) 2001, pp 391-405.
- Niedrich, R.W., Sharma, S., and Wedell, D.H. "Reference price and price perceptions: A comparison of alternative models," Journal of Consumer Research (28:3), Dec 2001, pp 339-354.
- Panzarasa, P., Opsahl, T., and Carley, K.M. "Patterns and dynamics of users' behavior and interaction: Network analysis of an online community," Journal of the American Society for Information Science and Technology (60:5), May 2009, pp 911-932.
- Parducci, A., and Wedell, D.H. "The Category Effect with Rating-Scales Number of Categories, Number of Stimuli, and Method of Presentation," Journal of Experimental Psychology-Human Perception and Performance (12:4), Nov 1986, pp 496-516.
- Silverman, G. The secrets of word-of-mouth marketing: How to trigger exponential sales through runaway word-ofmouth American Marketing Association, New York, 2001.
- Sykes, T.A., Venkatesh, V., and Gosain, S. "Model of acceptance with peer support: A social network perspective to understand employees' systems use," MIS Quarterly (33:2) 2009, pp 371-393.
- Weimann, G. "On the importance of marginality: One more step into the two-step flow of communication," American Sociological Review (47:6) 1982, pp 764-773.
- WOMMA "Press release: Word of mouth marketing is here to stay: WOMMA reaches membership milestone, Looks forward to industry growth.," 2007.
- Wong, S.S. "Judgment about knowledge importance: the roles of social referents and network structure," Human Relations (61:11), Nov 2008, pp 1565-1591.