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. Thus, our research questions are as follows.

1. Do price presentation and sales restriction strategies, which are used by brick-and-mortar stores, affect eWOM intention through deal evaluation in online settings?
2. Is the effect of price presentation on deal evaluation moderated by the properties of social networks?
3. Is the effect of sales restrictions on deal evaluation moderated by the properties of social networks?
4. Is the effect of deal evaluation on eWOM intention moderated by the properties of social networks?

To answer these questions, we will explore the research model from the perspective of eWOM senders in a laboratory setting. This 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 in the future research.

Keywords: Price Presentation, Sales Restrictions, EWOM Intention

1. Introduction

WOM is defined in this study as a consumer-dominated channel for broadcasting product or service information, where senders are independent of the market [1]. 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 [2]. WOM is a consumer behavior that includes information searching, assessment, and decision making [3-5]. Katz and Lazarsfeld [6] found that WOM was the most important information source for some domestic items, while Godes and Mayzlin [7] 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 and it is believed to be a more effective information exchange than conventional word-of-mouth, because 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 [8]. Prior research shows that the price presentation format influences purchase intention [9, 10]. Lichtenstein, Burton, and Karson [8] 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 result in the perception of good value [11], which in turn influences conventional WOM activities [12-17]. 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 [18]. 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 [7]. 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 [19-22]. 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 activity; therefore, this study intends to explore the eWOM intention of individuals through their position in an online social unit.

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

(1) Do price presentation and sales restriction strategies, which are used by brick-and-mortar stores, affect eWOM intention through deal evaluation in online settings?
(2) Is the effect of price presentation on deal evaluation moderated by the properties of social networks?
(3) Is the effect of sales restrictions on deal evaluation moderated by the properties of social networks?
(4) Is the effect of deal evaluation on eWOM intention moderated by the properties of social networks?

To answer these questions, this study will conduct an experiment to explore the research model from the perspective of eWOM senders in a laboratory setting. This experiment will allow us to control for variables that are difficult to control in the field and to explore the mechanisms behind eWOM intention.

In the presentation of the theoretical foundation and hypotheses of the study, we highlight the effects of price presentation and sales restrictions on consumer deal evaluation and the implications of some properties of social networks for deal evaluation and eWOM activities.

2. Theoretical foundation and hypotheses

2.1. Price presentation

Price presentation is one of the primary means by which retailers communicate with consumers [8]. 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 [23] 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. [8] 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 [8]. 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 [8, 24]. 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 [25] 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 could best account for the idea that consumers store, retrieve, and use a rich array of price information in the process of deal evaluation [25]. 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 and frequency theory. 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 [25, 26]. Consequently, the subjective judgment (J) of the target stimulus is formulated as

\[ J = wR + (1 - w)F \]  

(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 [26]. Thus, subjective judgment (J) takes on a value between zero and one. Niedrich et al. [25] 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. [25] 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. Range-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. [25], 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.

2.2. Sale restrictions

Sale restrictions are scarcity tactics, which limit the consumer’s freedom to purchase products [11]. 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 [11]. Commodity theory has been used to explain the effect of scarcity tactics [27]. 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 [28] 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 [29] found that product unavailability had a positive effect on product attractiveness, while Clee and Wicklund [30] 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.

2.3. 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 [11]. 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 [14] found that perceived value plays an important role in consumer behavioral intention, especially WOM intention. Several studies show that perceived value influences WOM [12-16]. Hartline and Jones [14] 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 [14]. Based on the foregoing discussion, to examine the effect of the above findings on Internet, the following hypotheses are proposed.

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

2.4. Moderating effects of properties of social networks

A social network is conceptualized as a virtual network made of nodes and joined together by ties [31]. 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.

2.4.1. Coping and influencing mechanisms: Following Sykes, Venkatesh, and Gosain [32], 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 [32]. Wong [33] 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 [33]. Ibarra and Andrews [34] 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. [32] 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. [32] 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.

2.4.2. 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 [32]. 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 [35] 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. [32] 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 4: The interaction between price presentation and network density is significantly related to deal evaluation.

Hypothesis 5: The interaction between sales restrictions and network density is positively related to deal evaluation.

2.4.3. 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 [36]. Homophilous individuals are more likely to interact with each other than heterophilous ones [36], which is known as the like-me principle [37], 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 [38]. 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 6: The interaction between price presentation and homophily is significantly related to deal evaluation.

Hypothesis 7: The interaction between sales restrictions and homophily is positively related to the deal evaluation.

2.4.4. Centrality: Network centrality represents the inherently relational power structure in a social unit [35]. 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 [35]. Balkundi and Kilduff [39] 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 8: The interaction between deal evaluation and centrality is positively related to eWOM intention.
The proposed research will be conducted by a laboratory experiment will be carried out. In the following sections, we discuss the research method.

3. Research method

A laboratory experiment will be conducted for 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, which is subject to verification.

![Research conceptual model](image)

**Figure 1.** Research conceptual model

3.1. Subjects

The subjects will be 300 undergraduate students with Internet shopping experience.

3.2. Experiment design

The experiment will adopt a completely randomized 4 (Price presentation) x 3 (Sale restrictions) between-subjects factorial design. The subjects will be randomly assigned to the different experimental conditions.

3.3. 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 interests or values shared among close friends/acquaintances or websites will be denoted “Homophily.”

3.4. Measurement

Respondents are going to be asked to rate their deal evaluation and eWOM intention based on standard instruments. Deal evaluation construct consists of three items, and each item is rated by 6-point bipolar scale, and the anchors are “a bad deal-a good deal”, “worthless-valuable” and “unattractive to me-attractive to me” respectively. EWOM intention will be rated on a 6-point bipolar scale anchored by, respectively, “unlikely/likely”, “improbable/probable” and “impossible/possible”.

4. Future work

In the near future, we are about to conduct a laboratory experiment and some interesting results are expected. The implications of our findings will not only benefit the theory building but also the practice.

5. References

[35] R.A. Hanneman and M. Riddle, *Introduction to social network methods.* Riverside, CA,

