The Impact of Observational Learning and Electronic Word of Mouth on Consumer Purchase Decisions: The Moderating Role of Consumer Expertise and Consumer Involvement

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Abstract

The social media revolution has created a dynamic shift in the digital marketing landscape. The voice of influence is moving from traditional marketers towards consumers through online social interactions. In this study, we focus on two types of online social interactions, namely, electronic word of mouth (eWOM) and observational learning (OL), and explore how they influence consumer purchase decisions. We also examine how receiver characteristics, consumer expertise and consumer involvement, moderate consumer purchase decision process. Analyzing panel data collected from a popular online beauty forum, we found that consumer purchase decisions are influenced by their online social interactions with others and that action-based OL information is more influential than opinion-based eWOM. Further, our results show that both consumer expertise and consumer involvement play an important moderating role, albeit in opposite direction: Whereas consumer expertise exerts a negative moderating effect, consumer involvement is found to have a positive moderating effect. The study makes important contributions to research and practice.

Keywords: Observational learning, electronic word of mouth, online social interaction, consumer expertise, consumer involvement, consumer purchase decisions

1. Introduction

Online social platforms (e.g., online social networking sites, online discussion forums, and online product review sites) have become an increasingly important and popular environment influencing consumer purchase decisions. Consumers can easily post and exchange their product reviews on company websites or third-party product review sites (e.g., Epinions.com). They can also report their past purchase behaviors on company’s websites (e.g., Amazon.com). These online social platforms are influential as consumers tend to trust peer consumers more than they trust e-marketers [30].

There are two forms of online social interactions: Opinion-based social interactions and behavior-based social interactions. The former type of online social interactions is defined as electronic word of mouth (eWOM) in the marketing literature [25, 41]. The latter type is defined as observational learning (OL) in the psychology and economics literature [1, 3]. In recent years, we have witnessed an emerging IS literature focusing on the impact of eWOM on consumer purchase decisions [20, 21, 31, 32, 36]. In contrast, we found that the second type of online social interactions, OL, has been ignored in the IS literature. There is a lack of understanding of how publicly observed information about other consumers’ actions affect consumer purchase decisions. Online social interactions involve two parties: the communicator (sender) and the receiver. The actual impact of the information received through online social interactions indeed may vary from person to person. The same content may engender very different responses in different receivers [7], depending on the receivers’ perceptions, experiences, and knowledge. We notice that consumer expertise and consumer involvement are the two most widely studied receiver characteristics in eWOM studies. Researchers have found that consumer expertise moderates the effect of eWOM messages on consumer purchase decisions [13, 35]. Similarly, prior research has shown that consumer involvement moderates the eWOM effect on consumer decision process [19, 29, 37]. However, the moderating effect of both consumer expertise and consumer involvement on the influence of OL on
consumer purchase decisions is not very well understood in existing literature.

In response to these research gaps, we explore how eWOM and OL influence consumer purchase decisions. In addition, we examine and discuss the moderating effects of both consumer expertise and consumer involvement in consumer purchase decisions. In the present study, we address our research questions by gathering and studying a unique data set based on product reviews as well as member characteristics for a specific set of beauty products chosen from a popular online beauty forum in Asia. We organize the rest of this paper as follows. First, we present the theoretical background and conceptual development of online social interactions. We then describe our source of data and methodology. Next, we present the results of data analysis. Finally, we conclude with a discussion of implications for theory and practice.

2. Theoretical Background

In this section, we will discuss the literature related to the two types of online social interactions as well as their respective theoretical foundations. In addition, we will introduce information processing theory and explain how consumer characteristics affect the influence of online social interactions on consumer behaviors.

2.1. Electronic Word of Mouth (eWOM)

eWOM communication refers to any positive or negative statement made by potential, actual, and former consumers about a product or a company via the Internet [25]. In the last decade, we found that there have been a significant number of studies conducted on the power of eWOM, and a majority of these studies are survey/experiment-based, in which respondents were asked to report the impact of eWOM on their purchase decisions [12]. In recent years, there is a significant increase in the number of studies using secondary panel data collected from the Internet and drawing inferences from online product reviews, product characteristics, and consumers’ actual behaviors [20, 21, 41].

Interpersonal influence refers to the process of influencing a person’s perception, attitude, and behavior. According to the social science literature, there are different types of interpersonal influence, including persuasion, conformity, and observational learning [5].

Prior research has demonstrated an association between eWOM and product sales/revenue and mostly explained this association through either awareness effects or persuasive effects [17]. Awareness effects indicate that reviews drive product awareness or accessibility and thereby put it in the choice set of consumers. The increase in eWOM volume raises product awareness, and results in higher product sales. In contrast, persuasive effects shape consumers’ evaluation towards the product and ultimately influence their purchase decisions. In other words, positive eWOM encourages other consumers to adopt and buy a product, whereas negative eWOM discourages them. A considerable number of studies however have found that only the volume of the reviews is significantly associated with product sales [9, 16, 20, 31].

2.2. Observational Learning (OL)

OL occurs when people observe the actions of others and make the same choice that others have made. They place significant weight on others’ information and ignore their own private information [2]. OL usually carries only the discrete signals expressed by actions of others, but not the reasons behind their actions. A number of experimental studies in the economics literature [3] have provided empirical support that individuals tend to change their behavior based on the information about others’ behaviors [15, 22].

The concept of OL is also found in the consumer behavior literature. Researchers used reference group theories to explain why people tend to make purchase decisions based on the observation of others’ purchasing behaviors [39]. Deutsch and Gerard [18] were the first to distinguish two types of social influence, normative and informational influence. Normative social influence occurs when a person conforms to expectations of another person or group, while informational social influence is a learning process in which a person accepts information from others as evidence about reality. Park and Lessig [34] further proposed the third type of influence by breaking the normative influence into two dimensions. The three types of social influence are: (1) Informational: Observing others’ behaviors as a source of information so as to enhance their knowledge of a particular environment. (2) Utilitarian: Observations of others to ensure acceptance and avoid psychological or physical harm. (3) Value-expressiveness: Observing others so as to match self-image with the social world.

2.3. Information Processing Theory

Over the years, researchers have used the dual-process theory of human information processing, including the Elaboration likelihood model (ELM) [38] and the Heuristic-Systematic model (HSM) [6], to study how information processing behavior can lead to decision outcomes [13, 24, 40]. The two models provide similar mechanisms in explaining information processing strategies through central/systematic route
and/or peripheral/heuristic route. The central/systematic processing involves careful examination of the message (the nature of arguments in the message), whereas the peripheral/heuristic processing uses environmental cues of the message (the subject matter of the message) to decide whether to accept the message or not.

Source, message, and receiver are three informational components in message evaluation [27]. Prior studies have showed that receiver characteristics (e.g., consumer expertise, knowledge, involvement) affect the way the receiver processes message. Our review of the prior literature has found that consumer expertise and consumer involvement are the two most commonly examined factors that determine the impact of eWOM on consumer purchase decisions [12]. For example, Park and Kim [35] found that the impact of type of reviews on purchase intention is stronger for experts than for novices while the effect of the number of reviews on purchase intention is stronger for novices than experts. Lee et al. [29] found that as involvement increases, the effect of negative eWOM is greater when the eWOM is of high-quality as opposed to of low-quality.

3. Research Model and Hypotheses

In this study, we use the information processing theory to explain how online social interactions affect consumer purchase decisions. Figure 1 depicts our research model. We propose that online social interactions (eWOM and OL) will have significant direct effects on consumer purchase decisions (consumer purchase behavior), with OL being a more powerful predictor than eWOM. We also expect that both consumer expertise and consumer involvement will negatively moderate the influence of both types of online social interactions on consumer purchase behavior.

3.1. Online Social Interactions

In this study, eWOM and OL, the two types of online social interactions, are considered as social influence that affects consumer purchase decisions. In the traditional consumer behavior literature, the power of interpersonal influence through social interactions has been well recognized [26]. Godes et al. [23] argued that the popularity of social networking websites and recent technological developments have significantly increased the impact of interpersonal influence on consumer purchase decisions through social interactions. Consumers can easily learn from and be affected by others’ opinions (eWOM) and/or others’ actual purchase decisions (OL) from online social platforms [10]. The relationships between eWOM and consumer purchase behavior have been well-established in prior literature [13, 33, 36]. In the current study, we focus on the impact of the amount of eWOM (volume) on consumer purchase behavior. We expect that the results will also follow the findings of prior studies [20, 31].

H1: eWOM has a positive effect on consumer purchase behavior

The concept of OL is relatively less explored in the marketing literature. Simpson, Siguaw, and Cadogan [39] used reference group theories to explain why people make purchase decisions based on the observation of others’ purchasing behaviors, which serve as simplifying decision heuristics when consumers encounter information overload. Therefore, we believe that OL (information about others’ prior purchase behavior) will enhance both consumer purchase behavior.

H2: OL has a positive effect on consumer purchase behavior

3.2. Electronic Word of Mouth vs. Observational Learning

Based on our understanding, this is one of the very first studies to investigate both the effects of eWOM and OL in the context of online social platforms. We further examine the relative impact of the two types of online social interactions on consumer purchase decisions. eWOM represents opinion-based information that often contains both the opinions and recommendations of other consumers. OL information only shows the actions of other consumers. Grounded in the conventional thinking that “actions speak louder than words”, action-based OL information is believed to be more credible than eWOM, and thus expected to have a stronger influence on consumer purchase decisions.

H3: OL has a stronger effect on consumer purchase behavior than eWOM
3.3. Consumer Expertise

Researchers found that people with different levels of expertise tend to use different information-processing routes to process persuasive information. For example, Park and Kim [35] found that consumer expertise plays an important moderating role in determining the impact of eWOM content on consumer purchase decision. Consumers with low expertise are more likely to base on the peripheral cue to process information and make purchase decisions. Brucks [4] highlighted that a number of studies found a negative relationship between the amount of experience and the degree to which an individual conducts an external information search. In the same line, we expect that more experienced consumers will be less likely to rely on peripheral cues such as amount of eWOM (rather than its actual content) when making purchase decisions. In addition, consumers with high levels of expertise will be more confident in their own decisions and behavior, and are thus less susceptible to the influence of OL information [39].

H4: Consumer expertise negatively moderates the relationship between eWOM and consumer purchase behavior
H5: Consumer expertise negatively moderates the relationship between OL and consumer purchase behavior

3.4. Consumer Involvement

Consumer Involvement refers to personal relevance to the product/service. A meta-analysis has found involvement to be an important influencing factor in information processing [28]. In the context of eWOM communication, when individuals have higher involvement, they have greater motivation to engage in effortful cognitive activity through the central route. When individuals have lower involvement, they tend to rely on peripheral cues during information processing. Prior studies have already demonstrated empirically the role of consumer involvement in moderating the effect of eWOM on consumer decision process [19, 29, 37]. We believe that highly involved consumers will be less likely to rely on peripheral cues such as amount of eWOM when making purchase decisions. As highly involved consumers have actively engaged in product knowledge exchanges in online social platforms, they tend to be more confident in their own decisions and behavior. We expect that their purchase decisions are less susceptible to the influence of OL information.

H6: Consumer Involvement negatively moderates the relationship between eWOM and consumer purchase behavior
H7: Consumer Involvement negatively moderates the relationship between OL and consumer purchase behavior

4. Research Method

4.1. Data Collection

The data for this study were collected during the month of December 2010 from a popular online beauty forum (hereafter referred to as Forum) in Asia. The website provides a platform for members to learn about beauty products, to share their experience related to beauty products, and to interact with other beauty enthusiasts.

The Forum organizes beauty products by brands and provides basic information about each product. Members of the Forum can post the experience that they have had with the use of any product (that is available at the Forum), provide a rating (from 1 to 7) on the product, reply to other members’ posts, recommend a member’s post to others, and choose to “follow” other members on the forum. They can also share the products that they have purchased by adding products to their “buy lists”.

The present study focuses on the discussion of branded products, which include all products under the same brand name. Individuals who have explicitly added a particular brand as their favorite brand are considered members of that brand community. The unit of analysis for this study is a member of a brand community. We are trying to explore how a member’s purchase decision is influenced by eWOM and OL in a brand community and how such influence is moderated by the member’s level of expertise and involvement in this brand.

Of the 60 brands of beauty products available at the Forum, 8 brands (i.e., Make Up For Ever, Givenchy, Kiehl, Biotherm, SKII, Guerlain, Kose, and Lancome) were carefully chosen for analysis in this study based on (1) the number of members in the brand community (i.e., large vs. small), (2) the number of products in the brand (i.e., large vs. small), (3) the type of products offered by the brand (i.e., primarily makeup or skincare vs. both), so that we could have a balanced representation of brand communities with different characteristics.

4.2. Operationalization of Constructs

The constructs included in the research model are operationalized as follows.
Table 1. Calculating eWOM and OL for a Member in a Brand Community: An Illustration

<table>
<thead>
<tr>
<th>Reference Persons</th>
<th>Calculating eWOM</th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Ratings (on Products in a Particular Brand) Provided by a Reference Person Before a Product (of this Brand) was Added to the Member’s “Buy List” (Assume that There Are 3 Products in the Member’s “Buy List”)</td>
<td>Before Product 1 Added to the Member’s Buy List</td>
<td>Before Product 2 Added to the Member’s Buy List</td>
<td>Before Product 3 Added to the Member’s Buy List</td>
<td></td>
</tr>
<tr>
<td>Jenny</td>
<td></td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Mary</td>
<td></td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Pam</td>
<td></td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Lily</td>
<td></td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Kate</td>
<td></td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5</td>
<td>11</td>
<td>23</td>
<td>39</td>
</tr>
</tbody>
</table>

**Total eWOM for the Member is 39**

<table>
<thead>
<tr>
<th>Reference Persons</th>
<th>Calculating OL</th>
<th>Number of Products (of a Particular Brand) Added to a Reference Person’s Buy-List Before a Product (of this Brand) was Added to the Member’s “Buy List” (Assume that There Are 3 Products in the Member’s “Buy List”)</th>
<th>Before Product 1 Added to the Member’s Buy List</th>
<th>Before Product 2 Added to the Member’s Buy List</th>
<th>Before Product 3 Added to the Member’s Buy List</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jenny</td>
<td></td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Mary</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Pam</td>
<td></td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Lily</td>
<td></td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Kate</td>
<td></td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>12</td>
<td>17</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

**Total OL for the Member is 36**

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1 Note that both eWOM and OL are accumulative. For instance, before Product 2 was added to a member’s “Buy List”, the total number of reference persons’ product ratings (or product purchases) is the sum of (1) the number of product ratings (or product purchases) by reference persons before Product 1 was added to the member’s “Buy List” and (2) the additional number of ratings (or purchases) by reference persons after Product 1 was added but before Product 2 was added to the member’s “Buy List”.

3232
eWOM. A member of a brand community can rate a product (in the brand) while sharing her or his experience about the product. S/he can also “follow” other community members whose posts or ratings s/he finds useful. Since the provision of rating is optional, not everyone that a member follows would have ratings on products in a particular brand. Therefore, the independent variable, eWOM, is operationalized as the total number of ratings \(^2\) (on products in a particular brand) provided by individuals who are followed by a member of the brand community, or the member’s reference persons. To provide support for the hypothesized causal influence of eWOM on consumer purchase behavior, we only included ratings that had been provided by a member’s reference persons before a product of this brand was added to the member’s “buy list”. See Table 1 for an illustration of how eWOM was calculated for a member in a particular brand community.

OL. A community member can add a product to her or his “buy list” to show that s/he has already bought the product. S/he can also learn the past purchase actions of her or his reference persons by viewing the products included in their “buy lists”. Thus, the other independent variable, OL, is operationalized as the total number of products (in a particular brand) in the “buy lists” of a community member’s reference persons. Similar care was taken to ensure that we took into account only products of a particular brand added to the reference persons’ “buy lists” prior to when a product of this brand was added to the member’s own “buy list” (see Table 1 for illustration).

Consumer Expertise. The Forum also provides statistics on the number of recommendations received by a member on the experience-sharing messages s/he has posted to the Forum. Since a member whose posts receive a large number of recommendations from fellow members in a particular brand is likely to be an expert of the brand, the moderator, consumer expertise, will be operationalized as the total number of recommendations a member has received on the experience-sharing messages s/he has posted to the Forum about products in a particular brand.

Consumer Involvement. The Forum provides statistics on the number of experience-sharing messages a member has posted to the Forum. Since a member who shares her or his experience about products in a particular brand frequently is likely to be an active member of the brand community, the moderator, consumer involvement, will be operationalized as the number of experience-sharing messages a member has posted to the Forum about products in a particular brand.

Consumer Purchase Behavior. At the Forum, a member can also add products to her or his “buy list” to indicate that s/he has already bought the products, a manifestation of the member’s purchase behavior. Thus, the dependent variable, consumer purchase behavior is operationalized as the number of products (of a particular brand) in a member’s “buy list”. Products of the same brand included in a community member’s “buy list” are aggregated to denote her or his purchase behavior in that brand.

5. Data Analysis

Table 2 summarizes the descriptive statistics for each variable.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num of member purchases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer expertise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(\text{Num of member purchases}\) is represented using a count variable because it adds together all the products (of the same brand) that are added to a “buy list”. Poisson regression and negative binomial regression are often used to analyze count data. Poisson regression model makes the very restrictive assumption that the mean of the dependent variable equals the variance [14]. If the variance is greater than the mean, the data is said to be over-dispersed, which can lead to inflation of the goodness of fit chi-square test and the overestimation of the significance of predictors [14]. An approach to over-dispersion is the use of the negative binomial regression model [14]. As shown in Table 2, for \(\text{num of member purchases}\), the variance is greater than mean, suggesting that the data is over-dispersed. Therefore, in this study, negative binomial regression (using SPSS) was adopted to test the hypothesized effects.

\(\text{2 Number of ratings, rather than average rating, is chosen as the operationalization of eWOM referral for two reasons. First, a considerable number of prior studies have found that the volume (rather than the actual content) of eWOM is significantly associated with product sales [8; 14; 18;29]. Second, initial analysis (see Table 2) shows that, of the 39897 members in the 8 brand communities chosen for this study, only 2901 of them are following members who have provided ratings on products in relevant brands. If average rating is used, 92.7% of the sample must be excluded from data analysis. With the elimination of members whose reference persons have provided no product rating, the analysis of the relationship between eWOM/OL and consumer purchase behavior will be biased, because it is based upon incomplete data.}
Table 2. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num of Member Purchases</td>
<td>39897</td>
<td>0</td>
<td>60</td>
<td>.35</td>
<td>1.614</td>
<td>2.604</td>
</tr>
<tr>
<td>Num of Ref Ratings</td>
<td>39897</td>
<td>0</td>
<td>70</td>
<td>.35</td>
<td>1.604</td>
<td>2.572</td>
</tr>
<tr>
<td>Num of Ref Purchases</td>
<td>39897</td>
<td>0</td>
<td>789</td>
<td>.40</td>
<td>6.440</td>
<td>41.471</td>
</tr>
<tr>
<td>Num of Posts</td>
<td>39897</td>
<td>0</td>
<td>60</td>
<td>.35</td>
<td>1.614</td>
<td>2.604</td>
</tr>
<tr>
<td>Num of Recommendations</td>
<td>39897</td>
<td>0</td>
<td>475</td>
<td>.55</td>
<td>6.939</td>
<td>48.145</td>
</tr>
</tbody>
</table>

Notation:
1. The number of products (of a particular brand) in a community member’s “buy list” ➔ Consumer Purchase Behavior
2. The number of product ratings (on products in a particular brand) provided by a community member’s reference persons before products in this brand were added to the member’s buylist ➔ eWOM
3. The number of products (of a particular brand) added to the “buy lists” of a community member’s reference persons before products in this brand were added to the member’s buylist ➔ OL
4. The number of experience-sharing messages a member has posted to the Forum about products in a particular brand ➔ Consumer Involvement
5. The number of recommendations a member has received on his/her experience-sharing messages posted to the Forum about products in a particular brand ➔ Consumer Expertise

The results of the negative binomial regression analysis are presented in Table 3, which summarizes the Omnibus test results, coefficients, the Wald statistic, and associated degrees of freedom and significance level of each of the predictor.

A negative binomial regression analysis was performed with num of member purchases as dependent variable, num of ref ratings and num of ref purchases as independent variables, and num of posts and num of recommendations as moderator variables (see Table 3). Omnibus test reveals that the full model significantly predicts num of member purchases (Likelihood Ratio Chi-Square = 4710.405, df = 6, p < 0.0001). Both num of ref ratings and num of ref purchases have significant positive effect on num of member purchases (β = 0.155, p < 0.0001; β = 0.372, p < 0.0001). A comparison of the two β coefficients reveals that num of ref purchases is the more influential predictor than num of ref posts (Wald t = 4.87, df = 1, p < 0.001). Our results suggest that the greater number of product ratings provided and prior purchases made by a member’s reference persons in a brand community, the more likely the member will purchase products of that brand. Moreover, a member will refer more to her or his reference persons’ prior purchase behavior than their opinions when making her or his own purchase decisions. Thus, H1, H2, and H3 are supported.

In addition, Table 3 reveals that, as hypothesized, num of recommendations exerts a significant negative moderating effect on the relationship between the two predictors (i.e., num of ref ratings and num of ref purchases) and num of member purchases (β = -0.01, p < 0.001; β = -0.006, p < 0.01). This suggests that, as members become more experienced in a brand (demonstrated by the number of recommendations they have received from fellow members on their experience-sharing messages posted on products of the brand), their purchase decisions will be less influenced by their reference persons’ product ratings or their product purchases. The results thus support H4 and H6. Further, Table 3 reveals that num of posts exerts a significant positive moderating effect on the relationship between num of ref ratings on num of member purchases (β = 0.023, p < 0.001) as well as between num of ref purchases on num of member purchases (β = 0.029, p < 0.001), suggesting that, as members become more actively involved participants in a brand community (indicated by the number of experience-sharing messages they have posted on products of the brand), their purchase decisions will be influenced by their reference persons’ product ratings and product purchases to a greater extent. Surprisingly, the results do not support H5 and H7.
Table 3. Results of Binomial Regression Analysis (DV: Num of Member Purchases)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>β</th>
<th>Std. Error</th>
<th>Wald Chi-Square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Num of Ref Ratings</td>
<td>.155</td>
<td>.0307</td>
<td>25.542</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Num of Ref Purchases</td>
<td>.372</td>
<td>.0323</td>
<td>133.014</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Num of Ref Ratings * Num of Posts</td>
<td>.023</td>
<td>.0054</td>
<td>18.550</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Num of Ref Purchases * Num of Posts</td>
<td>.029</td>
<td>.0067</td>
<td>18.075</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Num of Ref Ratings * Num of Recommendations</td>
<td>-.010</td>
<td>.0015</td>
<td>45.153</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Num of Ref Purchases * Num of Recommendations</td>
<td>-.006</td>
<td>.0019</td>
<td>11.286</td>
<td>1</td>
<td>.001</td>
</tr>
</tbody>
</table>

Omnibus Test: Likelihood Ratio Chi-Square = 4710.405 (df = 6, p < 0.0001)

Notation:
- Independent variables: Num of Ref Ratings, Num of Ref Purchases
- Moderator: Num of Posts, Num of Recommendations
- Dependent variable: Num of Member Purchases

6. Conclusion and Discussion

In this study we sought to examine the relative effects of eWOM and OL on consumer purchase decisions and the potential moderating role of consumer expertise and involvement. Our results have produced notable insights for both academic researchers and practitioners.

The study reveals that both eWOM and OL have a strong impact on consumers’ purchase behavior, with OL being a more important predictor than eWOM. This provides strong evidence that consumer purchase decisions are influenced by their online social interactions with others and that action-based OL information tends to be more influential than opinion-based eWOM. Further, our results show that whereas both consumer expertise and consumer involvement play important role in moderating the effects of online social interactions on consumer purchase decisions, they work in opposite directions, with consumer expertise having a negative moderating effect and consumer involvement exerting a positive moderating effect. More specifically, compared to less experienced consumers, those with a higher level of expertise in a particular brand are less likely to be influenced by others’ opinions or actions. Conversely, the more involved consumers are in a brand community, the more likely it is for them to be influenced by their fellow members’ opinions and actions. A probable explanation of the unexpected positive moderating effect of consumer involvement is that consumers who are more eager to draw others’ attention, and thus more susceptible to others’ influence, are more likely to share their product-related experience frequently. In addition, the greater amount of time these consumers spend within a brand community has afforded them greater exposure to others’ opinions and behaviors and consequently more opportunities to be influenced by others.

6.1. Research Implications

This study makes several important contributions to future research. First, this study provides strong empirical support for existing findings regarding the impact that eWOM and OL have on consumers’ purchase decisions [10]. In addition, by explicitly comparing the relative power of eWOM and OL in influencing consumer decision-making, this study establishes the latter as the more important predictor, suggesting that actions do speak louder than words [10]. Second, prior research in online social interactions has placed emphasis generally upon the effects of the stimulus (e.g., review messages, ratings). Our study contributes to this body of literature by examining whether and how the efficacy of eWOM and OL is moderated by the receiver’s (i.e., individual consumer’s) level of expertise in the relevant subject matter and level of involvement in social interaction. Our results suggest that, whereas consumer expertise weakens the effect of eWOM and OL on consumer purchase decisions, consumer involvement strengthens the influence of eWOM and OL. Our study also extends existing research in terms of the method used. Traditional word-of-mouth research generally employ surveys or laboratory experiments to study eWOM communication [11, 13, 19, 33, 36]. To our knowledge, this is the first empirical research to use panel data sets to evaluate the causal influence of online social
interactions (eWOM and OL) on consumers’ purchase decision-making. In cases where panel data sets are used, the focal dependent variable is usually product sales/revenue [8, 10], rather than individual consumers’ purchase behavior. The present study thus enhances our understanding of the impact of online social interactions at a micro level, filling a gap in existing research to date.

6.2. Managerial Implications

With the power of influence shifting into the hands of consumers, it is more important than ever for marketers to understand how these forces come about and how to potentially harness them to work in ones favour [10]. Understanding how online social interactions affect consumers’ purchase decisions is vitally important to firms that rely on eWOM and OL to promote their products and services. Our study provides insight for creating an online marketing strategy which takes the modern phenomenon of eWOM and OL into account. As an example, the finding that OL is more influential than eWOM suggests that action-based OL information might be perceived by individual consumers as more credible than opinion-based eWOM. Therefore, in addition to facilitating eWOM communication by allowing consumers to post product reviews/ratings online, firms are also advised to facilitate consumer OL by reporting past buyers’ purchase behaviour or usage activity on their websites. As our study indicates, OL may be more influential on possible customers than eWOM alone.

There is a plethora of methods by which online social interaction information can take place, (e.g., reviews, ratings, recommendations, prior purchases). The amount of information available to consumers may expose them to a heavy cognitive burden, resulting in a decrease in perceived informativeness of the social interaction information [37]. To mitigate information overload, firms are encouraged to provide consumers with personalized social interaction information based on consumer characteristics (e.g., personal information consumers input when registering membership, statistics on consumer activities at the website). The results of this study show that, whereas eWOM and OL are more influential when consumers have relatively little product-related expertise, eWOM and OL are more powerful in influencing consumers who are active participants of a brand community. A strategy then would be to expose those consumers who are more active in a brand community and those who are less experienced in a brand to other consumers’ product reviews/ratings as well as reports of past buyers’ purchase actions. Our study finds that these are where this information will be most effective.

6.3. Limitations

This study has limitations which must be noted. First, given that our data was collected from an online beauty forum, our respondents were primarily female. Thus, a gender bias will certainly exist. Future study could test our model with a data sample that is gender neutral or primarily male. Second, we sampled only 8 brands of beauty products in our data analysis. Future studies could sample a larger set of products in order to confirm that our results hold. Third, this study examines the moderating role of two receiver characteristics, consumer expertise and consumer involvement. Future study could explore how different characteristics of the communicator effect the impact of online social interactions. Finally, in this study, the measures for eWOM, OL, consumer expertise, consumer involvement, and consumer purchase behavior are quantitative surrogates and not direct measures of these constructs. Future studies could pair this objective approach with qualitative analysis. This will allow for insight as to how different forms of online social interaction influence consumers’ purchase decisions.

7. Reference