What Drives Consumers to Contribute Online Reviews: A Study from the Perspective of the Incentive Theory of Motivation

Mei-Ju Chen,
Department of Management Information System,
Chienkuo Technology University, Taiwan.
E-mail: mjchen@ctu.edu.tw

Abstract

Online reviews, a form of electronic word-of-mouth (eWOM) communication, have become one of the important sources determining consumer decision. Recent studies involving eWOM often focus on the impact of online reviews but shed little light on the motivation that drives consumers to contribute product online reviews on a specific platform. Researchers have indicated that many online review platforms suffer from low contribution levels. Platform owners must attract customers to write product and/or service reviews for maintaining their chance of survival. Building on the incentive theory of motivation in social psychology, this study identifies three possible incentives affecting consumers’ eWOM and develops an associated model. Using a web data crawler, data was collected from the website ipeen.com.tw, which is the biggest restaurant review platform in Taiwan. An analysis of the behavior patterns from the contributions of 2,908 reviewers on ipeen.com.tw indicated that the incentives of achievement, social affiliation, and economy affect the number of reviews posted and the helpfulness of these reviews. The findings of this study provide new perspectives to platform owners for understanding consumers’ contribution behaviors on their websites.

Key Words: Achievement Incentive, Social Alliance Incentive, Economy Incentive, Contribution Behavior, Online Review

JEL Classification: C19, G13, G14
1. Research Background

The Internet has enabled the creation of many online review platforms where consumers can comment on products and/or services. As a result, electronic word-of-mouth (eWOM) communication—encompassing consumer opinions, user experiences, and product reviews—has become an important determinant in the consumer purchase decision-making process (e.g., Dellarocas, 2003; Godes and Mayzlin, 2004). Online consumer reviews, as a public good, is freely available to users from all platforms, regardless of whether the user contributes their review to others (Garnefeld et al., 2012). Numerous studies have found a positive relationship between eWOM (online consumer reviews) and product sales (Park and Kim, 2008; Zhu and Zhang, 2010). Although many practitioners and scholars have demonstrated the increasing importance of online consumer reviews, many eWOM platforms still suffer from low contribution levels (Gan et al., 2009; Hennig-Thurau et al., 2010). Therefore, it is in the best interest of platform managers to discover how they can get as much consumer reviews on their websites as possible.

To describe the phenomenon of participation inequity, Nielsen (2006) introduced what is known as the 90-9-1 rule. This rule that is applicable to most online communities can also be explained using online consumer review platforms as an illustration. According to the 90-9-1 rule, 90% of the users are the so-called lurkers, who are passive and only read reviews; 9% actively participate in content creation from time to time; and only 1% form what are known as heavy contributors. This high percentage of passive members can cause online consumer review platforms to struggle for their existence or even fail (Ardichvili et al., 2003; Tedjamulia et al., 2005). In order to attenuate the problems caused by low contribution levels, several platform operators administer incentive-based motivation to stimulate member participation. However, studies that analyze the effects of explicit incentives on members’ contribution behavior in online consumer review platforms are rare and mostly anecdotal. This research study addresses this gap and answers the following key research question: How does the introduction of different incentives influence members’ contribution behavior regarding product and/or service reviews in terms of the quantity and quality of such reviews?

This study is organized as follows. Section 2 provides the theoretical basis for and the conceptual model of this study, including research hypotheses and the rationale behind them. Section 3 introduces the research methodology, including the data collection process and the summary statistics for variables. Section 4 describes the empirical results of this study. Finally, Section 5 summarizes the results of this study and concludes it.

2. The Theoretical Basis of this Study and the Development of Hypotheses

Based on the incentive theory of motivation, this study analyzes the effectiveness of incentives in encouraging the contribution behavior of online review platform members.
Drawing on the behavioral theory of psychology (Berridge, 2000), incentive theories propose that behavior is motivated by the “pull” of external goals, such as rewards, money, and recognition. One can easily think of many situations in which a particular goal can serve as an external incentive to activate particular behaviors (Hockenbury and Hockenbury, 2003). More specifically, an incentive is an object present in the environment or an event that encourages an individual to perform an action in the absence of any apparent physiological need. The incentive theory of motivation emphasizes the importance of the environment in influencing a behavior. An individual is more likely to continue a behavior if its consequences are positive. On the contrary, an individual is less likely to continue a behavior if its consequences are negative. In an online consumer review platform, commenting on a product and/or service that they have consumed costs the members their time and effort. Moreover, community members vary considerably in terms of their motivation to participate actively (Hennig-Thurau and Walsh, 2003-4; Wang and Fesenmaier, 2004). Therefore, the incentive may be a material object, such as money, or an intangible one, such as the positive reception from a significant person. In order to be motivated to post a review, a member must receive compensation for the costs of time and effort, usually in the form of expected benefits of posting. Information sharing is fast becoming a ubiquitous online phenomenon; however, the challenge remains in ensuring the quality of this information or inducing quality content (Chen et al., 2011). Moreover, a business listed on a review website can be affected by both the volume and the quality of the reviews written about its services and/or products (Vermeulen and Seeger, 2009). Garnefeld et al. (2012) indicate that researchers should consider the quality of the contributions and investigate the possibility of implementing an

Fig 1: The conceptual model used in this study

![Conceptual Model](image-url)

- **Achievement Incentive**:
  - Reputation Level
  - Amount of Friends
  - Free Voucher

- **Social Affiliation Incentive**:
  - Amount of Friends

- **Economy Incentive**:

- **Online Consumer Contribution Behavior**:
  - Quantity
    - Amount of Reviews
  - Quality
    - Helpfulness of Reviews
incentive scheme that increases both the quantity and the quality of reviews on the online consumer review platform. In summary, the conceptual model (see Figure 1) of consumer contribution in an online review website is an application of the incentive theory of motivation. Building upon the incentive theory of motivation and the related literature, this study identifies achievement incentives, social affiliation incentives, and economy incentives as important factors influencing the contributions of online consumers to online review platforms. Therefore, the conceptual model includes these factors as independent variables with a hypothesized relationship to the amount of reviews (H1a–H3a) and another hypothesized relationship to the helpfulness of these reviews (H1b–H3b).

2.1 Effect of the Achievement Incentive on Online Consumer Contribution Behavior

The achievement incentive, which is based on approval utility, stems from one’s desire for positive recognition from others (Hennig-Thurau et al., 2004). Prior research indicates that reputation systems influence the important consequences of peer recognition for both information contributors and consumers (Resnick et al., 2000; Jeppesen and Fredericksen, 2006).

Reputation level. A reputation or peer rating system provided by an online consumer review platform allows the members of the platform to provide helpful votes to reviews by answering “yes” to whether they found a review helpful (Forman et al., 2008). When an individual who contributes insightful product and/or service reviews receives favorable online feedback, he or she receives respect and recognition from other people (Tong et al., 2013). Recognition from other people may be in the form of being viewed as a consumption expert or an intelligent shopper by other consumers. Thus, researchers indicate that the members of online review platforms value reputation from peer recognition, which is, in turn, a positive motivator for information contribution (Jeppesen and Fredericksen, 2006). Therefore, this study proposes the following hypotheses regarding the reputation of achievement incentives in an online consumer review platform:

H1: The achievement incentive has a positive effect on online consumer contribution behavior.

H1a: Reputation has a positive effect on the number of reviews.

H1b: Reputation has a positive effect on the helpfulness ratio.

2.2 Effect of the Social Affiliation Incentive on Online Consumer Contribution Behavior

The social affiliation incentive refers to how the consumers’ desire to belong strongly motivates them to provide reviews on online opinion platforms (Hennig-Thurau et al., 2004). Chung and Lee (2012) found that the consumers’ eWOM intention was impacted by their sense of belonging, which is the emotional involvement of an individual with a group. In other words, when consumers have a strong sense of belonging to a community, they are
motivated to write reviews (Chung and Lee, 2012). The number of friends in online review platforms can be an indicator of social affiliation incentives.

**Amount of friends.** From the perspective of social networking, some members are socialites connected to many friends, whereas some are loners connected to a few friends. Yin et al. (2014) state that the number of friends of a member in an online consumer review platform represents the number of social ties possessed by that member in online social networks. The amount of friends can be interpreted as a form of what Bourdieu (1984, 1986) refers to as “social capital.” Bourdieu defines social capital as the number of social connections possessed by an individual. The members of review platforms usually maintain a social tie by exchanging either tangible or intangible resources, such as information, goods, and services (Hahn et al., 2006). In other words, the number of friends will affect a member’s intention of providing comments on review platforms. Consequently, the more social ties the members have, the larger the contribution behavior. Therefore, this study proposes the following hypotheses regarding the number of friends in an online consumer review platform:

**H2:** The social affiliation incentive has a positive effect on online consumer contribution behavior.

**H2a:** The more the number of reviewer’s friends, the more the number of reviews.

**H2b:** The more the number of reviewer’s friends, the more the helpfulness ratio.

### 2.3 Effect of the Economy Incentive on Online Consumer Contribution Behavior

The idea of using an economy incentive to boost online review contributions is not new. Hennig-Thurau et al. (2004) found a significant relationship between economic rewards and customers’ tendency to provide comments on review platforms. This is because the recipient of an economic reward considers it a sign of appreciation of their behavior by the reward giver. Yang and Lai (2010) also conducted a study to evaluate the motivation of individuals for writing online content on the Wikipedia website. They also found empirical support for the assumption that individuals are motivated to write in exchange for economic rewards.

**Free vouchers.** Incentives in the form of economic rewards can vary from cash rewards to discounts for another purchase (Nielsen, 2006). A free voucher is another form of a cash reward—it allows customers to taste the food at a specific restaurant without paying for it. This type of incentive is very effective for turning lurkers (people who only view reviews without posting any) into elders (people who post a lot reviews) by their participatory actions (Bishop, 2007). Therefore, this study proposes the following hypotheses about free vouchers as an economic incentive in an online consumer review platform:

**H3:** The economy incentive has a positive effect on online consumer contribution behavior.

**H3a:** The free voucher has a positive impact on the amount of reviews.

**H3b:** The free voucher has a positive impact on the helpfulness of reviews.
3. Methodology

3.1 Data Collection

For this study, data were collected using the online reviews available at the website ipeen.com.tw as of January 2016. A web crawler downloaded the HTML files containing reviewers’ information on their profile pages and information about the restaurant service reviews written by them. An initial test showed that most of the variables, with the exception of reputation level and amount of friends, are parts of normality assumptions. Therefore, a log transform was performed on these variables.

Table 1 describes the variables used in our dataset. These variables can be categorized into two groups: numerical expressions of the reviewers’ activity records (reputation level, amount of friends, number of reviews, and helpfulness ratio) and qualitative characteristics (free vouchers).

<table>
<thead>
<tr>
<th>Variable Type</th>
<th>Variable</th>
<th>Operationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variable</td>
<td>Log(Reputation Level)</td>
<td>The reviewer’s reputation level is operationalized using the summary of reviewers’ past contributions.</td>
</tr>
<tr>
<td></td>
<td>Log(Amount of Friends)</td>
<td>The number of friends of each reviewer.</td>
</tr>
<tr>
<td></td>
<td>Free Voucher</td>
<td>A dummy variable indicating whether the reviewer is 1: the member uses the free voucher, or 0: otherwise.</td>
</tr>
<tr>
<td>Dependent Variable</td>
<td>Amount of Reviews</td>
<td>The volume of restaurant service reviews posted by a specific reviewer.</td>
</tr>
<tr>
<td></td>
<td>Helpfulness of Reviews</td>
<td>This is quantified as the ratio of the number of helpful votes to the number of total votes received by the reviews contributed by a reviewer.</td>
</tr>
</tbody>
</table>

3.2 Variables

Table 2 shows the summary statistics of the study’s dataset, including the mean and standard deviation of variables. In total, our dataset consists of 2,908 reviewer’s activity records on ipeen.com.tw. The average reputation level is 14.67, and 35 is the highest achievement possible. The helpfulness ratio had a mean value of 0.74, indicating that the readers of the online review platform considered 3 out of 4 reviews to be helpful. Each reviewer posted 325 reviews on average. In addition, 15.7% of 2,451 reviewers received free vouchers, and 84.3% of 457 reviewers did not receive them (see Figure 2).

Finally, Table 3 presents the intercorrelation matrix obtained by performing Spearman’s nonparametric inter-item correlations among the items in the dataset. The correlation coefficients were obtained by conducting a pair-wise correlation between the variables at a level of significance of 1% (p < 0.01). This study also conducted a variance inflation factor (VIF) analysis to measure the significance of the multicollinearity problem. The VIF values...
of all variables are less than 4.0, indicating that multicollinearity is not a serious problem in our analysis.

Table 2: Descriptive Statistics for the Variables used to Estimate the Number of Reviews and Helpfulness Ratio (N = 2,908)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reputation Level</td>
<td>1</td>
<td>35</td>
<td>14.67</td>
<td>9.665</td>
</tr>
<tr>
<td>Number of Friends</td>
<td>0</td>
<td>1,127</td>
<td>125.84</td>
<td>157.767</td>
</tr>
<tr>
<td>Free Vouchers</td>
<td>0</td>
<td>1</td>
<td>0.16</td>
<td>0.364</td>
</tr>
<tr>
<td>Number of Reviews</td>
<td>1</td>
<td>4,463</td>
<td>325</td>
<td>516</td>
</tr>
<tr>
<td>Helpfulness Ratio</td>
<td>0</td>
<td>1</td>
<td>0.74</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Fig 2: Percentage of reviewers who received free vouchers

Table 3: Spearman’s Nonparametric Intercorrelation Matrix of the Constructs in Our Dataset

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Reputat</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Number of Friends</td>
<td>0.534**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Free Vouchers</td>
<td>0.245**</td>
<td>0.202**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Number of Reviews</td>
<td>0.925**</td>
<td>0.459**</td>
<td>0.205**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(5) Helpfulness Ratio</td>
<td>0.687**</td>
<td>0.553**</td>
<td>0.225**</td>
<td>0.567**</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: *p < 0.1, **p < 0.05, ***p < 0.01.

4. Results and Discussion

To understand how the online consumer contribution behavior changed according to the incentive mechanisms provided by online review platforms, the author developed the following two equation systems: one equation details the amount of reviews (Model 1) and one describes the helpfulness of reviews (Model 2).
Model 1: Amount of Reviews = Constant + \beta_{11} \text{Reputation} + \beta_{12} \text{AmountOfFriends} + \beta_{13} \text{FreeVoucher} + \epsilon.

Model 2: Helpfulness of Reviews = Constant + \beta_{21} \text{Reputation} + \beta_{22} \text{AmountOfFriends} + \beta_{23} \text{FreeVoucher} + \epsilon.

To analyze the models, this study used multiple linear regression with ordinary least squares (OLS) estimation. The results of the regression analysis are shown in Table 4 and Table 5. It can be seen that the two models showed an acceptable level of predictive power (Model 1: $R^2 = 0.96$; Model 2: $R^2 = 0.65$), indicating that both the models provided a good description of the dataset.

Hypothesis 1a-b: As expected, the results show that the incentive of reputation has a significant positive effect on the amount of reviews and helpfulness ratio. More specifically, the achievement incentive had more impact on the helpfulness ratio ($\beta_{21} = 0.259^{***}$) than the amount of reviews ($\beta_{11} = 0.249^{***}$). Hypothesis 2a-b: The amount of friends had a mixed impact on online consumer contribution behavior. The amount of friends showed a significant impact on the amount of reviews ($\beta_{12} = 0.479^{***}$). Contrary to the prediction of H2b, the results showed a significant negative link between the amount of friends and the helpfulness ratio ($\beta_{22} = -0.047^{***}$). Hypothesis 3a-b: The results show that the free voucher incentive has a significant positive effect on the helpfulness ratio ($\beta_{13} = 0.067^{***}$) and that there is no link between the free voucher incentive and the amount of reviews. Table 6 summarizes the implications of the results for testing the hypotheses of the study.

Table 4: Regression Estimates Explaining the Amount of Reviews

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.401</td>
<td>0.34</td>
<td>-41.521</td>
<td>0.000***</td>
</tr>
<tr>
<td>Reputation</td>
<td>0.249</td>
<td>0.008</td>
<td>35.767</td>
<td>0.000***</td>
</tr>
<tr>
<td>Amount of Friends</td>
<td>0.479</td>
<td>0.008</td>
<td>3.958</td>
<td>0.000***</td>
</tr>
<tr>
<td>Free Voucher</td>
<td>0.015</td>
<td>0.010</td>
<td>1.391</td>
<td>0.164</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.96</td>
<td>0.921</td>
<td>0.921</td>
<td>0.2090</td>
</tr>
</tbody>
</table>

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 5: Regression Estimates Explaining the Helpfulness of Review

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.092</td>
<td>0.35</td>
<td>2.670</td>
<td>0.008**</td>
</tr>
<tr>
<td>Reputation</td>
<td>0.259</td>
<td>0.007</td>
<td>35.698</td>
<td>0.000***</td>
</tr>
<tr>
<td>Amount of Friends</td>
<td>-0.047</td>
<td>0.010</td>
<td>-4.658</td>
<td>0.000***</td>
</tr>
<tr>
<td>Free Voucher</td>
<td>0.067</td>
<td>0.011</td>
<td>5.917</td>
<td>0.000***</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.80</td>
<td>0.65</td>
<td>0.651</td>
<td>0.2138</td>
</tr>
</tbody>
</table>

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. 
Table 6: Summary of the Hypotheses Testing Results

<table>
<thead>
<tr>
<th>Hyp.</th>
<th>Path</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a</td>
<td>Achievement Incentive (Reputation Level)</td>
<td>Amount of Reviews</td>
</tr>
<tr>
<td>H1b</td>
<td>Achievement Incentive (Reputation Level)</td>
<td>Helpfulness of Reviews</td>
</tr>
<tr>
<td>H2a</td>
<td>Social Alliance Incentive (Amount of Friends)</td>
<td>Amount of Reviews</td>
</tr>
<tr>
<td>H2b</td>
<td>Social Alliance Incentive (Amount of Friends)</td>
<td>Helpfulness of Reviews</td>
</tr>
<tr>
<td>H3a</td>
<td>Economy Incentive (Free Voucher)</td>
<td>Amount of Reviews</td>
</tr>
<tr>
<td>H3b</td>
<td>Economy Incentive (Free Voucher)</td>
<td>Helpfulness of Reviews</td>
</tr>
</tbody>
</table>

5. Conclusions and Recommendations

Online review platforms bring together a large number of consumers who are interested in various products or services (e.g., restaurants). In these platforms, some customers’ contributions include reviews, comments, and evaluations of both products and services, which could be valuable to other readers. The major objective of this study was to test a model of incentives to investigate why people contribute reviews to a specific online review platform. According to the incentive theory of motivation, incentives are offered under the assumption that the promise of incentives causes individuals to exert more effort on desirable behaviors (Greene, 2011). Utilizing real-world reviewer data from ipeen.com.tw, the empirical results of the study provided support for the theoretical model and qualified for most of the hypothesized relationships.

First, the findings indicate that the achievement incentive has a positive influence on either the amount of reviews or the helpfulness of reviews. Consistent with previous studies (Butler, 1991; Ardichvili et al., 2003), people with a high achievement motive enjoy a sense of competition, challenge, and accomplishment of goals that ensures their active participation and knowledge contribution. More specifically, many participants usually join online communities to answer questions raised by others and contribute information to gain recognition from their peers (Bagozzi and Dholakia, 2006).

Second, the results suggest that the social alliance incentive has a positive relationship with the amount of reviews but a negative relationship with the helpfulness of reviews. A possible explanation for this finding is that consumers having a strong sense of belonging to a community are frequently motivated to contribute content to online review platforms. Therefore, ensuring the quality of the review content with the increasing quantity of reviews is difficult.

Third, although prior research has examined the effect of economy incentives on consumers’ online review contribution behavior (Garnefeld et al., 2012; Sun et al., 2013; Tong et al., 2013), this research study is one of the first to investigate the largely neglected role of economy incentive in determining the helpfulness of a review. The results of this study indicate that the economy incentive indeed plays an important role in inducing high-quality reviews from readers.
Finally, the findings of this study have several managerial implications. First, the results suggest that markets should pay attention to the reviewers who have high achievement-oriented motivation, since they dedicate the most time to helping other consumers on the online platform and even restaurants, through their contributions and active participation in reviews. Second, to create a stronger social alliance incentive, platform operators should allow reviewers to create their own personal profiles so that reviewers can add other users as friends and directly communicate with them. Third, research results show that the economy incentive could be valuable for platform operators in inducing high-quality reviews from their readers.

References


Berridge, K. C., 2000, Reward learning: Reinforcement, incentives, and expectations, Psychology of learning and motivation 40, 223-278.


Godes, D., and D. Mayzlin, 2004, Using online conversation to study word of mouth communications, Marketing Science 23(4), 545-560.


