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Incentive Strategies in User Community of Online Trading Platform

——Bilateral Market Uncertainty Perspective

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Abstract: User community plays an important role in online trading platforms. It provides users a place to communicate, to solve problems and to exchange information with each other on a bilateral market—seller and buyer participants. Beginning with the incentive strategy, this paper studies the influence of material and spiritual incentive strategies on online trading platform. In addition, the authors take bilateral market uncertainty as a moderator into consideration. By doing an empirical research of hard data from a representative domestic online trading platform, the result shows us that (1) both material and spiritual incentive strategies have significant effects on improving the community user loyalty; (2) both material and spiritual incentive strategies are almost equally beneficial in high seller user uncertainty; while spiritual incentive is more useful in high buyer user uncertainty.

Keywords: online trading platform, incentive strategy, bilateral market, community user loyalty

1. INTRODUCTION

Successful user community is critical to the constantly growing online trading platform because user community is a place for platform users to communicate, exchange information, share common experience, raise and answer questions, and so on. If a user community of an online trading platform has a large number of participants with much enthusiasm, it would be widely convinced that the user community is substantial in content, strong in function and the online trading platform is good in service and advanced in management. Therefore, the engaging experience in community will strongly affect user’s attitude toward online trading platform. So here is the question: How to enhance the community user loyalty in order to provide a better community experience? We consider managerial incentive strategy is a useful and practical way.

Despite the fact that previous managerial scholars have noticed the effective interaction for user community to enhance user loyalty (Jenny, 2001 [1]; Claus et. al, 2002 [2]; Dennis et. al, 2005 [3]), they overlooked important questions like what managerial strategies, incentive strategies online trading platform should be taken and how to deploy them in order to enhance community user loyalty. Studies on human resources showed us that material and spiritual incentive can prompt people to consume more time and effort on specific activities (Zhang Yu, 2010 [4]; Dong Haoping, 2011 [5]). On the basis of those two research areas, this paper is mainly exploring how the incentive strategies, especially material and spiritual incentives, affect community user loyalty. In further consideration of the fact that online trading platform is faced with a bilateral market—sellers and buyers, and Grewal (2010) [6] pointed out that uncertainty is a nature attribute of bilateral market, and suggested that market makers should adjust their strategies when faced with different extent of bilateral uncertainty. We then adopt the factor of bilateral uncertainty as a mediator when research on the user community of online trading platform.

After the empirical analyzing of 811 samples from the most influential and representative online trading platform, hard data from user community shows us (1) both material and spiritual incentive strategies can significantly enhance community user loyalty, under otherwise equal condition material incentive has a stronger

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influence; (2) both material and spiritual incentive strategies are almost equally beneficial in high seller user uncertainty; while spiritual incentive is more useful in high buyer user uncertainty.

The remainder of the article proceeds as follows: First, a literature review is conducted and a theoretical framework is advanced; Second, we introduced a research design to operationalize the concepts within theoretical framework, and then an empirical analysis is described, followed by the results; Finally, a conclusion of this article and managerial implications are discussed.

2. LITERATURE REVIEW

2.1 Online trading platform community

In terms of the definition of the internet community, Jenny(2000) [7] defined it as an online social community where people with the same interest communicate with each other. The community is supported by computer technique, and restricted by regulations and rules. However, Reid(1995) [8] and Carter(2005) [9] define it from sociology angle. Like other social space, internet community requires large amount of time and energy from participants, whose imagination and creativity stimulate communication. Therefore, this communication maintains relationship between participants and hence promotes the development of individual communication. Our research background is the internet community part of the online trading platform. Functions of this internet community are: user communication, information acquisition and information spreading.

The goal of the online trading platform community management is to improve the community user loyalty. Only when the community user loyalty is improved, the functions of the community can work. In traditional condition, Bass(1972) [10] put forward that customer loyalty is expressed as customer repeated purchase on one commodity or buying a large number of it; Jacoby(1978) [11] summarized it as high frequency of purchasing behavior, while Frances(1980) [12] specified it as a behavior that purchase on one commodity three times continuously. Then Paul(1986) [13] s research revised it as four times. By combining historical study, the thesis believes that community user loyalty can be measured by the times that users log in the community and the positive degree that users participate in the activities of the community.

Compared with the common community, the online trading platform community has a special characteristic that it is based on a bilateral market and its users are bilateral customers—seller and buyer participants. Uncertainty degree is a main attribute of the bilateral market. Grewal(2010) [6] demonstrated that the uncertainty of the bilateral market has an influence on the supply and demand of the market; Sandy(2007) [14] found out that the uncertainty of buyers has larger effects on market than the uncertainty of sellers has; Bo Xv(2010) [15] considered that the uncertainty of buyers can influence the market by changing the uncertainty of products. Therefore, if we want to manage the online trading platform community well, we need take the buyers and sellers factor in the bilateral market into consideration. Hence the incentive strategies can be more in line with online trading platform community to improve community user loyalty.

2.2 The incentive strategies in online trading platform community

Maslow(1943) divided people’s demand into five levels: physiological demands, security demands, emotional demands, respect demands and self realization demands; Blackwell(1999) [16] has an opinion that perceived benefits include material factors, service factors, psychological factors. These factors all can be summed up as material demand and spiritual demand. So, the incentive strategies that meet all kinds of demand can be separated into two categories: material incentive and spiritual incentive. Material incentive is realized by giving users various material awards to satisfy people's physiological demands, while spiritual incentives work on people’s mental to meet their psychological needs, which including sense of participation, self-identity, sense
of achievement, and other spiritual demands.

Concerned about the theory of the material incentives, domestic scholars Shufeng Sun (2000) \(^{17}\) thinks material demand is the most basic demand in human demands system. The satisfaction of material demands is the prerequisite for social communication and culture life. By specifically focusing on the network environment, Jiade Luo(1999) \(^{18}\) had an idea that virtual currency has an positive effect on self-determination, social activities, information acquisition of community users. Besides, virtual currency can enhance senses of participation, identity and belonging. Therefore, the material incentive strategy in the online trading platform community has an irreplaceable function in improving the community user loyalty.

Concerned about the theory of spiritual incentives, according to the view of Joseph(1999) \(^{19}\) the function of spirit incentive is very strong. A survey conducted by The United States International Management Technology Company shows: during the working process, the sense of achievement ranked first, followed by sense of participation, and material incentive factors such as salary incentive ranked after the fifth. In online trading platform community, the spirit demand of participants is expressed as a desire for more support and attention from their views and comments. It will make them develop a certain sense of achievement in their mind and improve the sense of participation. Therefore, to improve community user loyalty of participants, spiritual incentive is indispensable. The spirit incentive policies in the online trading platform community are necessary in improving the community user loyalty.

3. HYPOTHESIS AND THEORATICAL FRAMEWORK

3.1 Incentive strategies and community user loyalty

Material demand is human’s basic demand (AH Maslow, 1943) \(^{20}\). Satisfaction of material demands is the prerequisite for social communicating and culture life. The function of material incentives can not be ignored. Just like the salary has huge attraction to enterprise staff, virtual currency which can be converted into various material objects also has big attraction to the participants of virtual community (Jiade luo,1999) \(^{18}\). Therefore, the material incentive strategy in the online trading platform community has an irreplaceable function in improving community user loyalty. According to the analysis above, we put forward following hypothesis:

H\(_1\): The material incentive strategy of the online trading platform has a positive effect on community user loyalty.

Spiritual incentive mainly works on people’s mind, it is used to satisfy people’s security demand, emotional demand, respect demand and self realization demand (AH Maslow, 1943) \(^{20}\). Spirit incentive strategy can strengthen participates spirit satisfaction feeling in online trading platform community. For example, we can satisfy our social demand through making friends in community and fulfill our sense of belonging by taking part in a discussion. Approved by others can fulfill their sense of achievement demand. Therefore, with the implement of the spirit incentive strategy, they make more friends, join more discussions and get more support. Therefore, they get more sense of achievement and participation. In this way, the community user loyalty is improved. According to the analysis above, we put forward following hypothesis:

H\(_2\): The spiritual incentive policies of the online trading platform have a positive effect on community user loyalty.

3.2 Bilateral market uncertainty

Online trading platform community faces a bilateral market, which means the participants can be divided into two categories—the sellers and buyers The uncertainty degree of the sellers and buyers can influence the effects of the incentive strategies in online trading platform(Grewal, 2010; Bo Xv, 2010) \(^{6}\)\(^{15}\).
The bigger the uncertainty of sellers is, the more troubles are. The sellers tend to log in the online trading platform community for help, meanwhile, proper material incentive will promote sellers take part in the community discussion, solve others’ problems, contribute their intelligence; also, proper spirit incentive can make sellers get the sense of belonging and the sense of achievement, so that it can improve the community user loyalty of sellers. Based on the analysis above, we can put forward following hypothesis:

\[ H_3: \] In the bilateral market that the online trading platform community faced, the uncertainty of sellers will strengthen the effects of the incentive strategies applied by the online trading platform community.

The higher the uncertainty of buyers is, the harder the consumer behavior to be predicted by the seller and the platform. The high uncertainty of buyers results in a loss of potential customer feedbacks. The community serves as online trading platform service system, the effective incentive strategy can ease the implicit problems the uncertainty of the buyers brings. In these two kinds of incentive, the material incentive can bring more benefits to the buyer and make them more willing to expose their true ideas. While spiritual incentives can help buyers to get the honor of consumer-opinion-leader and improve user viscosity potentially. At the same time, buyer’s community user loyalty is improved. Therefore, we put forward the following hypothesis:

\[ H_4: \] In the bilateral market that the online trading platform community faced, the uncertainty of buyers will strengthen the effects of the incentive strategies applied by the online trading platform community.

3.3 Theoretical framework

According to the hypothesis above, we put forward the following theoretical framework. In this framework, the material incentives and spiritual incentives as two most important incentive strategies have a positive effect on improving the community user loyalty in online trading platform community. Besides, in the bilateral market, the uncertainty of sellers and buyers promote the effects of the incentive policies of the online trading platform.

![Figure 1. theoretical framework](image)

4. RESEARCH DESIGN

4.1 Sample and Data Collection

User community of Taobao.com, the biggest Chinese online transitional electronic business platform, is opened to thousands of seller users and buyer users simultaneously. Based on the data collected from September to November on Taobao community, the authors deleted the items containing meaningless and blank data and finally got 811 raw data of Taobao community. We reached the relevant conclusions after conducting the multivariate moderated regression of those data.

4.2 Measurement

4.2.1 Dependent Variable

Since the psychologists confirmed the importance of encourage and reward on human’s Behavior Activation System (Carver, 1994) [21], scholars in Marketing area studied reward point strategy in service
product (Matthew, 2009; Byung-Do Kim, 2004) \(^{22}\)\(^{23}\). They considered that reward points have a significant incentive effect on community user loyalty (Wemer, 2000) \(^{24}\). Thus, we chose Community Reward Points (CRP) as the dependent variable to reflect the user loyalty in community.

Specific to Taobao.com, there are several rules for getting reward points: 3 points for logging the community per day; 1 point for one reply; 2 points for a poster, and so on. Just as other transitional platform, community of Taobao.com set different user-levels according to the number of their reward points, and higher level represents higher user loyalty.

### 4.2.2 Independent Variable

We considered that material and spiritual incentive strategy adopted by online trading platform could have an effect on community user loyalty in bilateral market.

Firstly, it is universally accepted that material incentive is the preferred incentive strategy (Anton, 1983) \(^{25}\). Based on that, we chose “Silver Coin” (or SC, a virtual currency pronounced by the community of Taobao.com) as one of the independent variables represented for the material incentive strategy. Community of Taobao.com gives a certain amount of Silver Coin to a user according to the user’s level. Silver Coins could be changed into coupons or gift certificates.

Secondly, spiritual incentive is another important complimentary incentive strategy for material incentive strategy (Luo Ling, 2010) \(^{26}\). In this study, “Prestige Value” (or PV, an agreement points showed by other users in the community of Taobao.com) could be considered suitable to stand for spiritual incentive strategy. Specifically, viewers of a certain poster could express their support or opposition through adding a plus 1 or a minus 1 to the Prestige Value of the poster publisher.

### 4.2.3 Moderating Variables

According to Grewal (2010), online trading platform must faced with a bilateral market, and users on each of them have their uncertainty, which would have a big influence on the platform.

Firstly, as to the uncertainty of sellers, we chose the Length of Opening (LO) of the online shop owned by a specific seller user to represent it. Generally speaking, on online trading platform, the longer the length of opening of a seller’s shop is, the more business experience s/he would get, thus the lower the uncertainty of that user will have. On the other hand, along the same logic, we can regard that the shorter the length of shop opening is, the higher the uncertainty of that users will have.

Secondly, as to the uncertainty of buyers, we chose Average Industrial Complaint (AIC) to represent it for the reason that the higher the buyer user uncertainty towards a merchandise in a specific industrial, the easier for them to resort to lodge a complaint. For example, compared to a buyer who bought a rechargeable card for a cell-phone, another buyer who bought an import snack would have a bigger chance to dissatisfy about the product and lodge a complaint. Although the import snack may have a similar price as the rechargeable card, it would get more complaint from the consumers because they have different appetite, which means buyer users would have a higher uncertainty rate. So we think that AIC could reflect the buyer user uncertainty and the higher the AIC is, the higher the buyer users uncertainty get.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Operating Variables</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community user loyalty</td>
<td>Community Reward Points</td>
<td>CRP</td>
</tr>
<tr>
<td>Material Incentive</td>
<td>Silver Coin</td>
<td>SC</td>
</tr>
<tr>
<td>Spiritual Incentive</td>
<td>Prestige Value</td>
<td>PV</td>
</tr>
<tr>
<td>Seller User Uncertainty</td>
<td>Length of Opening</td>
<td>LO</td>
</tr>
</tbody>
</table>

### 4.3 Analysis Model

In sum, in order to analyze the influence of incentive strategy on the community user loyalty, and further
explore the moderating effect of two-side market uncertainty of bilateral users, we exploit the following analysis model for our study:

Our analysis model is showed as equation (1):

\[
CRP = C + \beta_1 SC + \beta_2 PV + \beta_3 LO + \beta_4 AIC + \beta_5 SC*LO + \beta_6 PV*LO + \beta_7 SC*AIC + \beta_8 PV*AIC + \varepsilon
\]

where

\(C\) is the constant, \(\beta_i (i=1~8)\) are regression coefficient and \(\varepsilon\) is the residual error.

5. ANALYSIS AND RESULT

5.1 Descriptive Statistics and Correlative Analysis

After the analysis of operating variables from the collected 811 items: Community Reward Points (CRP), Silver Coin (SC), Prestige Value (PV), Length of Opening (LO), Average Industrial Complaint (AIC), we could get the descriptive statistics and correlative analysis result as showed in table 2:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD Error</th>
<th>CRP</th>
<th>SC</th>
<th>PV</th>
<th>LO</th>
<th>AIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP</td>
<td>0</td>
<td>17975.0</td>
<td>833.6</td>
<td>1714.8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>0</td>
<td>46019.0</td>
<td>848.8</td>
<td>2435.2</td>
<td>.694**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV</td>
<td>0</td>
<td>20392.0</td>
<td>210.5</td>
<td>1012.4</td>
<td>.352**</td>
<td>.416**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO</td>
<td>1.0</td>
<td>9.0</td>
<td>2.5</td>
<td>1.6</td>
<td>.285**</td>
<td>.259**</td>
<td>.152**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AIC</td>
<td>.00</td>
<td>4E-2</td>
<td>8.05E-4</td>
<td>3.89E-3</td>
<td>.101**</td>
<td>.061</td>
<td>.047</td>
<td>-.002</td>
<td>1</td>
</tr>
</tbody>
</table>

From table 2, we could see that: the data range of CRP reach to 17975.0 points, standard error 1714.8 almost as twice as the mean 833.6, which implicates that there is a big difference in customer loyalty from one community user to another, so we could try to enhance the customer loyalty in the lower part by exploiting incentive strategies; similarly, SC and PV also show a big difference in their sample values, which implicates that material and spiritual incentive strategies have different effects on community users. Noticed that value of SC is larger than PV on average, it shows us that material incentives may have a bigger influence than spiritual incentives. The mean of LO is 2.5 years, which is relatively short, so the seller users uncertainty actually exists; the mean of AIC is around 8‰, but the standard error is 3%, much bigger than the mean, which shows there are a certain number of buyer users who have higher uncertainty, so it still deserves to research.

The result of variable correlative analysis shows that except a relatively high correlation between CRP and SC (0.694), all of the other correlative coefficients are weak (lower than 0.5), so we get the condition to go further study.

5.2 Regression Analysis

According to our analysis model, in order to test the main effect and the moderating effect at the same time, we utilize SPSS16.0 to conduct linear regression analysis of all samples. The results are showed as follows:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sd. Coefficient</th>
<th>T Value</th>
<th>Probability</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>1.596***</td>
<td>15.012</td>
<td>.000</td>
<td>H1√</td>
</tr>
<tr>
<td>PV</td>
<td>.271***</td>
<td>3.818</td>
<td>.000</td>
<td>H2√</td>
</tr>
<tr>
<td>LO</td>
<td>.184***</td>
<td>7.855</td>
<td>.000</td>
<td>-</td>
</tr>
<tr>
<td>AIC</td>
<td>-.020</td>
<td>-8.38</td>
<td>.402</td>
<td>-</td>
</tr>
<tr>
<td>SC*LO</td>
<td>-2.831***</td>
<td>-7.589</td>
<td>.000</td>
<td>H3√</td>
</tr>
<tr>
<td>PV*LO</td>
<td>-.506***</td>
<td>-7.143</td>
<td>.000</td>
<td>H4√</td>
</tr>
<tr>
<td>SC*AIC</td>
<td>.057*</td>
<td>2.126</td>
<td>.034</td>
<td></td>
</tr>
<tr>
<td>PV*AIC</td>
<td>.634***</td>
<td>10.058</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>
According to table 3, we could see that:

On online trading platform, both of the material and spiritual strategies have a positively incentive effect on enhancing the users’ community user loyalty ($\beta_1=0.1.596$, $p=0.000$, $\beta_2=0.271$, $p=0.000$). As is showed by the result, we could notice that when all the other things being equal, material incentive strategy has a stronger influence than the spiritual incentive strategy ($\beta_1=1.596>\beta_2=0.271$).

At the same time, the uncertainty of the bilateral market can moderate the effect of incentive strategies on community user loyalty. On the one hand, as the seller user uncertainty getting lower (LO getting longer), the effect of both of the strategies would getting weaker ($\beta_5=-0.831$, $p=0.000$; $\beta_6=-0.806$, $p=0.000$), which indicates that under higher seller user uncertainty, the incentive strategies would work better. On the other hand, as the seller user uncertainty getting larger (AIC getting bigger), the effect of both of the strategies would getting stronger ($\beta_7=0.057$, $p=0.034$; $\beta_8=0.634$, $p=0.000$), which indicates that under higher buyer user uncertainty, the incentive strategies would work better. Besides, we also notice that the effect of the spiritual incentive is more influenced by buyer user uncertainty than material incentives ($\beta_7=0.057<\beta_8=0.634$), which means spiritual incentive policies would work better than material incentive policies when faced with a high buyer user uncertainty.

6. CONCLUSIONS AND MANAGARIAL IMPLICATIONS

According to the empirical analysis, we get some conclusions and enlightenments:

The spirit incentive strategies and material incentive strategies are both have positive effects on improving the participate loyalty of the community. So, we can improve the community user loyalty by setting up reasonable spirit and material incentive policies. The research results show that when other factors are identical, material incentives is more effective than spiritual incentives in improving community user loyalty. Therefore, when the online trading platform companies deploy incentive strategy, they can put more efforts on the material inventive strategy.

In the bilateral market that the online trading platform community faced, the uncertainty of sellers and buyers can both strengthen the function of the community management policy. Therefore, when facing the high uncertainty of the immature bilateral market, especially for the Chinese online trading platform companies which are still in their infancy, using the appropriate incentive strategy can bring the ideal effect. In addition, we aware that the uncertainty of sellers will strengthen the effects of material incentives and spirit incentives, and when the uncertainty of buyers is high, spiritual incentives work better. The revelation about it is that we should formulate proper incentive strategy according to the uncertainty of the bilateral market that the online trading platform faced. For example, when the uncertainty of buyers is high, we should attach importance to the effects of the spirit policy and perfect spirit incentive policy to improve the user community

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