Exploring the Mediating Effect of E-social Capital Between Community Members Interaction and Consumer Engagement

Bingsheng Yan¹, Lihua Li² and Hongtao Sun^{3,*}

^{1,2,3}Staff Development Institute of China National Tobacco Corporation, 7# Road Xinyuan, Zhengzhou, Henan, China
Corresponding Email: 14877884@qq.com

Abstract. This article explored the effect of instrumental interaction and relational interaction on consumer engagement (community engagement and brand engagement) among community members. The mediating effect of E-social capital was investigated as well. The research results showed that: both instrumental interaction and interpersonal interaction promote the formation of E-social capital (online trust and online reciprocity); online trust plays a partial mediating role between community interaction (instrumental interaction, relational interaction) and community engagement, but the influence of online reciprocity on community engagement is not significant; community engagement leads to brand engagement. The findings enrich the theories of brand community and consumer engagement and contribute to the virtual community management.

1 Introduction

Interaction among community members is an important factor to form a positive community relationship. The users engaging in online community activity are related with the frequent interaction between members. This interaction reflects the social, Continuous interaction can improve member status, trust and influence in the community that it is shown by the increase of social capital. According to Hsiao & Chiou (2012) and Bartolini & Sarracino (2014), social capital would influence brand loyalty, subjective well-being and other psychological attitude or behaviour [1,9]. Since it is so, whether it can be deemed as a positive role in consumer community relationship and behavior such as engagement? From the perspective of the influence path, what role does social capital play between the members' interaction and engagement in a online brand community?

Based on the theory of social capital, we explore the effect of the interaction among community members on engagement. This article combines the theory of social capital and brand to study how E-social capital influence consumer engagement. There are meanings for management understanding how to manage the online brand community and to guide the behavior of the community members.

2 Theoretical background

2.1 Community interaction

Online interaction among brand community members is a kind of wide spread phenomenon. Lots of famous corporations have set up their own online brand community in order to maintain long-term contact with their current or potential consumers [5,23]. In an online brand community, there are complicated interaction related to consumers, brand, products and firms. The interaction among consumers is especially frequent and important. It is critical for the improvement of brand relationship. Hudson et al. (2015) found that the emotional attachment of consumers would be generated through the interaction of social media, then affect the quality of brand relationship and promote the spread of the brand word of mouth [10].

Network interactive includes instrumental interaction and relational interaction. According to social exchange theory, the purpose of community members' interaction is to get some interest and their loyalty to community to a large extent depends on whether the community meet their needs [2,6,7]. Chen et al. (2013) regards social interests of community members as emotional support, friendship, relationship, social identity and self-expression, and social value community members perceived have an important impact to community attitudes [3]. Zhou et al. (2013) suggests that viewing posts will make the visitors obtain information value and social value in the online brand community and

ultimately affect their participation [24]. Instrumental interaction and relational interaction just right satisfy both values. The instrumental interaction can be accurate exchange or common exchange and members' interactive motivation is more obvious. Relational interaction, by contrast, can be called fuzzy returns, which are uncertain or not immediately available and may need to repeat.

2.2 E-social capital

Coleman (1990) pointed out that social capital is composed of social organizations and provides convenience for the individual within the organization and the individuals with social capital will be conducive to realize their goals [4]. Nahapiet and Ghoshal (1998) defined social capital as "the sum of the actual and potential resources embedded in personal and organizational relationship network" that is different from other capital and owned by the group [16]. Although the individual can acquire resources by organization, no member can enjoy social capital alone. They suggested that social capital should be divided into three parts, namely, the relational dimension, structural dimension and the cognitive dimension. Lin (2001) also regarded social capital as a kind of resource embedded in the social network that exists in social relations and social networks rather than individuals [13]. According to the above definitions, social capital is embedded in a particular social network and studying social capital would be meaningless without social network.

Scholars have explored the influence mechanism of social capital in addition to its concept, structure and properties. Several scholars explored the antecedents of social capital from the perspective of social interaction because interaction and communication are the most active links to display human sociality [20,22]. The influence of social capital on economy and society is very extensive.

With the popularity of Internet technology, scholars found that online interaction is very important antecedent to form social capital as same as offline. There are a lot of heterogeneous members and they can mutually contribute novel information under the network environment. This kind of information is one of values the members obtained when they got the social capital of network [11]. For a online community, the increase of network social capital members owned is beneficial to the innovation and sharing of knowledge, which can be used to accelerate the development of new products, to strengthen the relationship with my partners, and increase consumer brand loyalty and so on by firms [18]. It shows that the social capital in network have a positive impact on corporate performance like offline social capital. These findings suggest that the network social capital has become one of important resources of individuals, businesses, social, and even national development when the network space becomes more and more popular in people's life.

Sicilia and Palazon (2008) held that offline brand community and online brand communities are similar in nature [19]. Mathwick et al. (2008) using "voluntary law, reciprocal norms and trust to measure the social capital of virtual community, namely, E-social capital can be differentiated from the social capital of offline community [15]. We adopt the measurement method of Mathwick et al. (2008) for E - social capital because our object of study is online brand community.

2.3 Consumer engagement

Community engagement will promote members more willing to help others and achieve own goal and eventually get many benefits. Brodie et al. (2013) believed that the most important is the interaction between members of brand community [2]; Second, engagement is a extensive, dynamic and interactive process; Third, it is a multi-dimensional variable that includes cognitive, emotional, and behavioral dimensions; Finally, consumer engagement plays an important role in members' relationship exchange. Vivek (2009) suggested that consumer engagement refers to the degree of connection and participation between consumers and firm's products or activity, such as consumer's enjoyment for Ikea experience, i-phone, etc [21].

We refer to the definition of Vivek (2009) about consumer engagement and define community engagement as the degree of connection and participation between the members of the community. Brand engagement is defined as the degree of connection and attention between consumer and a specific brand. Community engagement and brand engagement are divided into three dimensions: enthusiasm, participation and social contact [21].

3 Hypotheses

3.1 Community interaction and community engagement

Online interactions between community members not only include words, pictures and other information exchanges, but also include the participation of online activities, net friend relationship maintenance, making new friends and so forth, such as "thumb up" on this kind of new form of interaction. Owing to the different purposes of community members interaction, this paper divides community interaction into instrumental interaction and relational interaction. Community interaction manifests as social contact, participating in activity and dedicating community. These purpose of interaction are to get some information related to their own interests, ask for help, make new friends and strengthen interpersonal relationship. Community members will generate a series of psychologies or behaviors that is beneficial to

community, such as participating in positive network word-of-mouth if the interactions of different purposes in the community can bring the happy social experience or solve problems [4].

Interaction is the main behavior of online community members and social contact, participation activity and so on can be regarded as different forms of interaction that they have very close connection between them. For example, Lin (2001) found that the interaction in social networking platform has a positive effect on social participation, which is the principal form of community engagement [13]. When firm unites their websites with social media platforms, the communication between firm and consumers can significantly improve consumer satisfaction so that they are reluctant to leave the social networking platform that this condition would further strengthen the relationship between the user and the community at the psychological level. Therefore, based on the above realistic observation and theoretical analysis, this study proposed the following hypotheses:

H1a: Instrumental interaction among members has a positive effect on community engagement;

H1b: Relational interaction among members has a positive effect on community engagement.

3.2 Community interaction and E-social capital

Some scholars have proved the importance of community interaction on social capital formation. Studies have shown that the online interaction quality of members would affect the social presence and ultimately affect the formation of the E-social capital [13]. The interaction effect of microblog contributes to improve social contact, trust, reciprocal norms and shared vision of social capital. Counterparties in bidding auction sites positively utilize members interaction to enhance the score of social capital dimensions and strengthen the thought to stay online trading [22]. Above all, it can be found that online community interaction affect E - social capital.

Frequent interaction for some important information or opinions of both sides can easily establish mutual trust. Positive and continuous interaction is beneficial to enhance each other's presence and trust from each other in uncertain environment. So, this paper puts forward the following assumptions:

H2a: The instrumental interaction of members has positive influence online trust.

H2b: The relational interaction of members has positive influence online trust.

Another dimension of E-social capital, reciprocity, is very similar to social exchange theory. The underlying mechanism of exchange is reciprocity. People participate in brand community is that they can get useful information, establish related relation with other participants and get return through reciprocal behavior in the community [22]. This relationship will not last if only pay no return. This reciprocal relationship is formed through long-term interaction [15]. Members access to information through instrumental interactive and will also be willing to provide to other members understand their known information under the influence of the reciprocal norms. A member's reciprocal intention would not be very strong if he/she has never participated in any interaction. Thus, we put forward the following assumptions:

H2c: The instrumental interaction of members has positive influence on online reciprocity;

H2d: The relational interaction of members has positive influence on online reciprocity.

3.3 The influence of E-social capital on community engagement

The reinforcement of trust among members, expectant improvement for others and continuous reciprocal behavior are all the performance that members have raised the level of E - social capital, which is beneficial to reinforce members' relationship with community and brand. Mathwick et al. (2008) suggested that E - social capital exerted positive influence on information value and social value and ultimately affected the online brand community commitment [15]. Especially when community members perceive exclusive shared information, their participation will be significantly increase. Shared vision, trust and identity have significant effect on members participating in community affairs. According to the findings of Mathwick et al. (2008), when information values of members are satisfied the relationship between members and community will be affected. Therefore, as the level of trust among community members raise online interaction frequency will be more and higher and will develop into a more intimate relationship among members. According to the above analysis, trust can promote the development of the relationship between members of the community [15]. So, the following hypothesis is provided:

H3a: Online trust will significantly affect the community engagement of members.

With respect to the study of reciprocity in brand community, scholars empirically investigated the antecedents and consequences of new members to join the online community [3]. The results show that members' similarity and reciprocity will affect the will of new members to join and reciprocity positively affects the member satisfaction and community participation intention. The reciprocity can promote community commitment. Lee, et al. (2011) held that the altruism motivation of community members promotes community engagement [12]. Therefore, the online reciprocity of members will affect community engagement. Reciprocity enables the members in the community to get what they want, such as understanding, a sense of belonging and value identity or entertainment, etc. Along with the continuous increase of community members and reinforcement of participation willingness, the connection among members will be more frequent and close their relationship will be endured and deepen. Therefore, there is the following hypothesis:

H3b: Online reciprocity would positively affect the community engagement of members.

3.4 The mediating effect of E-social capital on community interaction and engagement

With the popularity network interaction, scholars gradually transfer research focus from the real offline to online. Existing studies related to social capital have evaluated the relationship quality of community members established by interaction and how these relationships affect members' activities [2].

Study shows that interaction can promote interpersonal trust [14,16].Which would effectively promote members to actively participate in social activities that enhance the relation between the members and the community. Community members hope to reciprocate others through participating in community activity. Reciprocity is an important foundation for the efficient users operation of online brand community, strengthen the interdependence among members, form a more intimate and friendly relationship and reinforce the community sense of belonging of members.As community members to interact, their contribution will increase to the community and gradually form the social capital (e.g. trust, reciprocity). Community members will contribute their behavioral, cognitive and emotional aspects to the community and are willing to spend more time in community immerse in the community.

Combining with the hypothesis H1a,H1b, H1c, H1d and H2a, H2b, this paper puts forward the following assumptions:

- H4a:Online trust plays a mediating role between the instrumental interaction and community engagement;
- H4b: Online trust plays a mediating role between the relational interaction and community engagement;
- H4c: Online reciprocity plays a mediating role between the instrumental interaction and community engagement;
- H4d: Online reciprocity plays a mediating role between the relational interaction and community engagement.

3.5 Community engagement and brand engagement

Brodie et al. (2013) suggested that activity participation and social presence are merely the antecedent of consumer engagement, its consequences may include commitment, trust, self-brand links, brand attachment and brand loyalty, etc. Among them, loyalty and commitment are most prominent in online brand community [2]. Vivek etal. (2012) established a theoretical model of consumer engagement that activity participation and joining community are as antecedents of consumer engagement and value, loyalty, trust, commitment, word-of-mouth and community involvement etc. are all the consequence variables [21]. Scholors not only ulteriorly pointed out the three dimensions (cognitive, emotional, and behavioral) of consumer engagement, but also proved that the consumer engagement and brand engagement will appear simultaneously in online community [8,17].

Community and brand belong to two different research category. However, they have certain connections. The brand is the core element of a community and community is built for a brand. Members' behavioral intention or emotions related to community will transfer to the brand when there is high similarity between the community and the brand in terms of users' characteristics, values, management philosophy. The deeper the interaction of the community members, the closer their links with the brand will be, and will pay more attention and passion to the brand and brand engagement appears. Then, there is the following assumption:

- H5: The community engagement of members has a significant and positive effect on brand engagement.

Based on the mediating role of E-social capital, the members' interaction of online brand community will affect community engagement, which and then affects brand engagement (Figure. 1):

Fig.1. Study model.

4 Method

4.1 Measurement

The test items of main variables in the model are adapted from maturity scale. Community interaction includes instrumental interaction and relational interaction, which each contains four test item [16].E-social capital consists of online trust and reciprocity that the former is measured by four items and the latter includes five test items [3].Community engagement and brand engagement all include enthusiasm, participation and social contact and community engagement and brand engagement use ten items to measure respectively [21].

In order to accurately explore the relationship among main variables and eliminate the influence of irrelevant factors, we investigates the control variables in terms of community engagement and brand engagement. The control variables

of community engagement include gender, time for joining community, community size, community identity and community type; the control variables of brand engagement include brand trust brand loyalty and brand satisfaction.

4.2 Data Collection

After questionnaires design was completed, we carried out questionnaire survey through an online platform. 1062 effective questionnaires were recovered after two weeks. Then we eliminated 57 ineffective questionnaires and eventually get 1005 effective questionnaires (effective questionnaire rate: 94.63%).

5 Empirical analysis

5.1 Reliability and validity

We used SPSS 17.0, AMOS 17.0 and Smart PLS 2.0 to analyze the data. Internal consistency reliability and composite reliability were adopted to test reliability. Apart from Cronbach's α of instrumental interaction is 0.701, Cronbach's α of brand loyalty is 0.789, Cronbach's α of other latent variables were greater than 0.8. When we deleted arbitrary item the new Cronbach's α of all latent variables are less than the original Cronbach's α coefficient, which suggests that the questionnaire and variables have high internal consistency. The composite reliability of all latent variables are greater than 0.8, which shows that the composite reliability of all latent variables are reasonable.

In this paper, the process of questionnaire design is very strict and the content validity can be guaranteed. Next step we test the structure validity of each variable that include convergent validity and discriminant validity. Convergent validity is usually tested by confirmatory factor analysis and every item factor loading are above 0.7. Fit indexes of model are respectively: χ^2 (1005) = 1093.725, χ^2 /df = 4.971 (< 5), RMSEA = 0.063 (< 0.08), NNFI = 0.927 (0.9) >, CFI = 0.937 (0.9) >, IFI = 0.937 (> 0.9). At the same time, the value of average variance extract from the same latent variables are between 0.542- 0.815, which are greater than 0.5. Therefore, we can determine all latent variables in the model have high convergent validity.

In addition, the item loading of each latent variable should be greater than the loading in other latent variable. The cross loadings of all latent variables conform to this standard that suggest that all test items of latent variables in the model are with high discriminant validity.

In conclusion, based on above analysis, the reliability and validity are reasonable and the further test is permitted.

5.2 The test of goodness of fit

Goodness of fit is generally used to test the fit of model. According to the formula; we can calculate the value of goodness of fit is 0.615, which suggests that the fit degree among latent variables in the model is very good.

5.3 Hypothesis test

We established two models to test the mediating role of E-social capital. Model 1 directly tests the effect of community interaction (instrumental interaction and relational interaction) on the community engagement. Model 2 tests the mediating role of E-social capital (online trust and reciprocity) between community interaction and community engagement. According to the results of software PLS test, the path coefficients of instrumental interaction and relational interaction to the community engagement are 0.205 and 0.205 (H1a, H2a: t-value is 4.768 and 4.768, respectively, are greater than 1.96, $p < 0.001$) in model 1 that suggests that there is significant correlation between community interaction and community engagement and community engagement has significant and positive influence on brand engagement (H5: $\beta = 0.667$, $t = 0.667$, $p < 0.001$). Therefore H5 is supported.

In Model 2, E-social capital is applied as an mediator variable to add in. First of all, Model 1 has proved that community interaction (instrumental interaction and relational interaction) significantly affects community engagement in the absence of E-social capital as a mediator; Then the effect of instrumental interaction on online trust is tested (H2a: $\beta = 0.156$, $t = 5.795 > 1.96$, $P < 0.05$) and the effect of online trust on community engagement is significant as well (H3a: $\beta = 0.189$, $t = 6.014 > 1.96$, $P < 0.01$) that show H1a and H2a are supported. When the mediator online trust is added in the path coefficient of from instrumental interaction to the community engagement is smaller than before ($\Delta\beta = 0.049$, $\Delta t = 0.049$, $P < 0.001$) but the effect between the variables is still significant (H1a: $\beta = 0.156$, $t = 0.156$, $P < 0.001$), which shows that online trust plays partial mediating effect between instrumental interaction and community engagement; Adopting same testing method proves that online trust plays mediating effect between relational interaction and community engagement; However, when we examined the effect between instrumental interaction and online reciprocity the effect is not significant between online reciprocity and community engagement (H3b: $\beta = 0.052$, $t = 0.052 < 1.96$, $p > 0.05$) that suggests there is no mediating effect between community interaction and community engagement.

At the same time, we can find from the Model 2 that adding time ($\beta = 0.042$, $t = 0.042$, $p < 0.05$) and community identity ($\beta = 0.348$, $t = 0.348$, $p < 0.001$) are reasonable for the controlling effect of the community engagement in the

control variables of community engagement and the controlling effect of gender, BBS size and BBS type on community engagement are not significant ($t < 1.96$, $p > 1.96$). Among the control variables of brand engagement, the controlling effect of brand trust and brand satisfaction and brand loyalty on community engagement are not significant ($t < 1.96$, $p > 1.96$).

To sum up, except the mediating effect of E-social capital between community interaction online reciprocity is not supported all other hypothesis are supported under controlling several variables.

6 Conclusions and discussions

Based on above empirical analysis, we found conclusions as follows:

First, the instrumental interaction and relational interaction of members significantly and positively influence online trust and online reciprocity in online brand community. Instrumental interaction and relational interaction are two types of online interaction in online brand community. Interaction would promote the formation of social capital [20] that is consistent with the results of our study.

Second, online trust plays mediating effect. After long time interactions among members, trust to other members will promote commitment to others. As a result, online trust play a role of bridge among members and lead to the sense of belonging and community engagement. At the same time, the empirical analysis results show that the online reciprocity does not have significant influence on community engagement and the mediating effect between member interaction and community engagement is also not significant.

Third, the community engagement of members significantly affects brand engagement. This suggests that the relationship between the members and the community can promote the improvement of brand relationship that is consistent with Gulati et al. (1995)[12]. The in-depth interaction among community members will be able to bring them social capital, which leads to the trust and reciprocal behaviors for the community and produces strong sense of belonging to the community and community engagement.

Managements should actively create community atmosphere and encourage members to participate in interaction, properly guide to community members, such as organizing various kinds of activities to attract the different needs of members. Marketers should strengthen the guidance of the community and improve the members' trust to the community. Marketers should apply with the certain measurements to ensure the usefulness and authenticity of information and the normalization of behaviors, such as ban on advertising, spreading untrue comments, timely handling conflicts among members. In addition, the community managers should strengthen the connection between the members and the community, encourage community members to participate in community activities and make them immersed in community. And then spread brand recognition and brand culture through community to make the members have strong brand consciousness. As such they not only can improve relationship between the members and the community, but also can enlarge the brand appeal and influence, strengthen the brand value and personality, eventually achieve the goal of improving consumer - brand relationship.

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