Social Capital and Knowledge Sharing in Online Communities: A Mediation Model

Sally Pui-Man Law
Hong Kong Baptist University
sallypmlaw@alum.hkbu.edu.hk

Man-Kit Chang
Hong Kong Baptist University
mkchang@hkbu.edu.hk

Abstract
Social capital theory has been used widely to explain knowledge contribution. However, most of the previous studies have focused on investigating the direct impact of social capital, while the underlying mechanism by which social capital affects knowledge contribution has not been fully understood. It has been argued that social capital facilitates knowledge exchange by affecting the conditions necessary for exchange, not the exchange behavior itself. We developed a research model in which anticipated status enhancement and community identification were identified as two mediators between social capital and the willingness to contribute knowledge. PLS analyses based on data collected from 448 online community members show that the two mediators affect knowledge contribution positively. Except shared language, all other social capital factors, namely, instrumental network ties, expressive network ties, community trustworthiness, and norms of cooperation have significant positive effects on the mediators and their indirect effects on knowledge contribution are also significant.

1. Introduction
Although online communities offer a source of value for knowledge sharing and creation, such value cannot be realized unless individuals are willing to contribute their knowledge there. Accordingly, it is important to understand the reasons that drive individuals’ knowledge contribution behavior in online communities.

While prior studies provide insights into the role that social capital plays in knowledge contribution, some limitations are found. Our review has found that prior research has made considerable efforts to establish the linkage between social capital and knowledge contribution, but most of these efforts have been devoted to studying the direct impact of social capital on knowledge contribution.

The criticism of using social capital to predict knowledge contribution directly is that social capital provides favorable conditions for knowledge sharing but does not incorporate the motivational content needed to induce an intention to act within a person. In developing their model of knowledge exchange, Nahapiet and Ghoshal [31] pointed out that social capital facilitates the exchange and development of intellectual capital by affecting the conditions necessary for exchange; it does not affect the exchange behavior directly. One of such necessary conditions is the motivation, i.e., feeling of worth their while, of those individuals involved. Similarly, in their conceptual model of social capital, Adler and Kwon [1] put motivation as a mediator between social relations and the realization of the benefit of social capital – such as the willingness of sharing expertise by the contributors in knowledge sharing. The authors suggested that more theoretical and empirical work is needed to understand the features of the social structure that facilitate the development of social relations that provide the requisite motivation. However, there is paucity of research on the mediating role of motivation between social capital and knowledge contribution in the extant literature.

The importance of mediation analysis is that it can identify the fundamental mechanism or causal sequence underlying human behavior. Once a mediating effect is confirmed, then more efficient interventions can be developed focusing on variables in the mediating mechanism as changing the mediating factors will in turn change the outcome [27].

Thus, our research question is “What are the motivations behind individuals’ knowledge contribution behavior and how do these motivations mediate the effect of social capital on knowledge contribution?” To address this research question, we use Nahapiet and Ghoshal’s [31] social capital model of knowledge exchange as the starting point to develop our research model. In our model, we adopt their definition of social capital which is defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” [31, p. 243]. Social capital is conceptualized along
three dimensions: the structural dimension, manifesting as network ties; the cognitive dimension, manifesting as shared language; and the relational dimension, manifesting as trustworthiness and norms of cooperation. These three dimensions of social capital have been put forward as the main drivers of knowledge sharing within collectives, based on the reasoning that they create supportive conditions for exchange among individuals. Moreover, drawing upon Portes’s [34] discussion about instrumental and consummatory motivations, together with the social exchange theory and the social identity theory, we identify anticipated status enhancement and community identification as two important motivations behind individuals’ knowledge contribution behavior. Also, as there is no systematic studies and existing theory that explain how social capital affects motivations, we draw upon the insights from the literature of social network and status enhancement, the social identity theory, and prior research on group identification to deduce how the different dimensions of social capital trigger individuals’ motivations to contribute knowledge.

By theorizing and validating the mediating role of anticipated status enhancement and community identification, our research model clarifies the mechanism by which social capital affects knowledge contribution behavior. Understanding the underlying mechanism is crucial, as it helps to advance the theories on social capital and to provide a more fine-grained view on the drivers of knowledge contribution behavior. In the following section, a more detailed description of the research model will be provided.

2. Research model

Our research model, as shown in Figure 1, which also presents the results of our study, consists of two sets of elements grounded in the aforesaid theoretical perspectives. The eventual outcome construct in the research model is knowledge contribution. It refers to the extent to which an individual is willing to make his/her experience, know-how, or expertise available to others through the online community system.

2.1. Motivation behind the act of knowledge contribution

The first set of elements in our research model concerns the motivation behind the act of knowledge contribution. In his discussion on social capital, Portes [34] highlighted the need to distinguish between the motivation of recipients and donors in exchanges. Applying this idea to knowledge exchange in online communities, it is obvious that knowledge seekers would like to participate in the knowledge exchange activities of an online community as they can get the benefit (knowledge) from the exchange, but the important question is why the knowledge contributors are willing to participate without immediate reward.

According to Portes [34], the motivation of knowledge contributors can be distinguished into two broad categories: instrumental motivation and consummatory motivation. The former has its root in social exchange theory [6] while the latter can be explained with social identity theory [38].

2.2. Anticipated status enhancement and knowledge contribution

As suggested by social exchange theory [6], instrumental motivation operates when individuals grant resources to others based on the beliefs that they will be fully repaid in the future and that the collective itself can insure repayment to them. This repayment may come not directly from the individuals’ beneficiaries within the collective but from the collective as a whole in the form of social reward such as status.

In an online community context where tangible and monetary rewards for knowledge contribution are not always available, status becomes a critical reward that individuals may want to obtain in return for their effort in making knowledge contribution to the online community [22]. In other words, the knowledge contribution behavior of an individual is likely to be driven by his/her anticipated status enhancement, which reflects the amount of respect or recognition the individual expects to receive from the online community members by contributing his/her knowledge in the online community. This tendency to enhance one’s status through the act of knowledge contribution has been observed in prior online community studies [14,39]. Thus, we suggest the following hypothesis.

H1: Anticipated status enhancement will have a positive effect on knowledge contribution.

2.3. Community identification and knowledge contribution

Consummatory motivation arises from individuals’ desire to fulfill their felt obligations toward themselves and others. These obligations are based on deeply internalized value imperatives engendered through individuals’ socialization in childhood or through their emergent identification with a given collective [34]. According to social identity theory [38], to the extent that individuals develop an identification with a collective, they will see themselves as integral to the
collective and their fates intertwined. Because of this sense of belonging to and common fate with the collective, individuals become intrinsically concerned with the collective’s welfare and are likely to act in ways that support the collective.

Accordingly, when individuals identify with an online community, they are also likely to support it in a variety of ways because the online community’s welfare is psychologically incorporated into their self-concept [38]. Given that knowledge contribution is a means to support the online community and its members, individuals who have higher level of community identification should be more likely to contribute their knowledge to the online community. Some studies have also demonstrated that people share knowledge with the expectation of helping the online community to accumulate its knowledge, continue its operation and grow [7,12]. Thus, this leads to the following hypothesis.

H2: Community identification will have a positive effect on knowledge contribution.

2.4. Social capital as trigger of motivation

The second set of elements in our research model, which is developed based on Nahapiet and Ghoshal’s [31] social capital model, concerns the various dimensions of social capital that serve as the triggers of the motivations behind knowledge contribution. In the following, the hypotheses for how the three dimensions of social capital may trigger individuals’ instrumental motivation and consummatory motivation will be formulated by drawing upon the literature of social network and status attainment as well as the social identity theory.

2.5. Network ties and anticipated status enhancement

The structural dimension of social capital concerns the existence and the arrangement of social relationships among individuals in a given social context [31]. In an online community, these social relationships, known as network ties, are the bonds that bind the online community members together, and the channels that afford them access to each other’s resources.

In social capital research, the approach to operationalizing the structural dimension of social capital has predominantly focused on assessing the structural properties of social networks. Some frequently studied indicators include network size, tie strength, nodal centrality, and network density. Although this typical way to operationalize network ties has been widely adopted in research, it has been criticized for its negligence of the content of network ties. Content here refers to the tangible and intangible resources conveyed through a tie; it reflects the behaviors and interactions between individuals that characterize the nature of their relationships [33]. As noted by many researchers [e.g., 1,31], being an aspect of social capital, network ties should be conceptualized more broadly to include both the structure of relationships among individuals and the content of these relationships.

Based on our review of the content of network ties, we conclude that the often mentioned types of network ties in the literature normally evolve around the following two domains of tie content, which can be organized according to Ibarra and Andrews’s [20] classification of network ties. In the current study, we will conceptualize and operationalize the network ties constructs along these two domains of tie content.

Instrumental network ties represent the relationships among individuals whose interactions focus on problem-solving and task-oriented communication. From an individual’s viewpoint, these network ties correspond to the contacts or acquaintances whom the individual can rely on for information, expertise, or advice.

Expressive network ties represent the relationships among individuals whose interactions feature positive affect, closeness, and comfort. From an individual’s viewpoint, these network ties correspond to the contacts or acquaintances whom the individual can rely on for friendship and emotional support.

An individual attains his/her status by contributing high-quality knowledge contents to the online community or by revealing the depth of their expertise in answering others’ questions in the online community. While everyone is able to utilize his/her act of knowledge contribution to attain status in an online community, it is much easier for individuals who have more network ties within the online community to do so than for those who are not.

According to the literature of social network and status attainment, individuals can utilize their network ties to attain status in a social system [17,24,25]. In an online community, network ties serve two functions in facilitating the status attainment process. First, by acting as the information channels within the online community, network ties can disseminate an individual’s act of knowledge contribution to other members, and thus, make them aware of the individual’s effort in serving the online community [29]. Second, by acting as the social credentials of an individual, network ties can make the individual’s act of knowledge contribution appear to be more credible and carrying more weight, and thus, increase the likelihood that the individual’s act of knowledge contribution will be positively received by others.
contribution will be recognized and appreciated by others in the online community [24]. Since network ties help to make the act of knowledge contribution a more productive tool for status enhancement, individuals who have more network ties may hold a higher expectation that contributing knowledge in the online community will enhance their status there. This leads to the following hypotheses.

H3: Instrumental network ties will have a positive effect on anticipated status enhancement.

H4: Expressive network ties will have a positive effect on anticipated status enhancement.

2.6. Network ties and community identification

According to social identity theory, individuals will identify with a group as far as the group allows them to maintain and enhance a positive self-esteem [38]. This enhancement of self-esteem stems from the amount of caring that the individuals perceive the group is giving them [37], which in turn, depends on the number of network ties possessed by the individuals within the group.

As mentioned, in an online community, instrumental network ties offer individuals access to information, expertise, and advice, while expressive network ties offer them access to friendship and emotional support. Thus, the more network ties individuals have developed in the online community, the more resources they can obtain there. Being able to acquire resources from the online community, individuals are likely to feel being cared by the online community. Such feeling strengthens individuals’ self-esteem as online community members, and thus, their identification with the online community. Hence, this leads to the following hypotheses.

H5: Instrumental network ties will have a positive effect on community identification.

H6: Expressive network ties will have a positive effect on community identification.

2.7. Shared language and community identification

Language is the means by which individuals discuss and exchange information, ask questions, and conduct collective activities. Since language influences individuals’ perception, it serves an important function in social relations [5]. In an online community, the wording, terms, jargons, narrative forms etc. that are commonly adopted by its members constitute their shared language. Such a shared language represents the online community’s own distinct communicative pattern and is a salient aspect defining that community.

According to social identity theory, individuals construct their social identities from a group by finding out the salient and distinctive characteristics that define the group and incorporating these characteristics into their self-concepts [19]. Given that the salient and distinctive characteristics of an online community may be embodied in its shared language, to the extent that individuals consider the members of that online community communicate with a shared language, they will be more likely to identify with the online community. Hence, this leads to the following hypothesis.

H7: Shared language will have a positive effect on community identification.

2.8. Community trustworthiness and community identification

Trust refers to a willingness to be vulnerable to others that arises from the belief in their trustworthiness, such as competence, reliability, integrity, and good intent [28,31]. Our study focuses on the kind of trust that arises from a belief in the trustworthiness of the online community system (i.e., community trustworthiness). It is defined as the willingness of individuals to accept vulnerability based on their belief that there are appropriate conditions within the online community to ensure knowledge exchange activities can take place competently, reliably, and with integrity.

According to social identity theory, individuals have an innate desire to reduce uncertainty about their social world and their place within it [19]. Trustworthiness of the online community reduces that kind of uncertainty by allowing individuals to form a positive impression on the overall community. As a result, the more individuals perceive an online community as trustworthy, the less uncertainty they feel about acting there. This in turn strengthens their identification with the online community. Thus, this leads to the following hypothesis.

H8: Community trustworthiness will have a positive effect on community identification.

2.9. Norms of cooperation and community identification

Norms exist when socially defined right to control an action is held not by an actor but by others [13]. In an online community, norms influence how individuals perceive and interact with each other, approach decisions, and solve problems. Norms of cooperation,
in particular, emphasize personal effort toward collective outcomes as opposed to individual outcomes [11]. When norms of cooperation prevail in the online community, individuals are expected to tolerate each other’s mistakes as well as to value and respond to different views in the online community.

According to social identity theory, individuals have a fundamental need to reduce uncertainty about their self-concept: individuals want to know who they are and how to behave, and who others are and how they might behave, because this allows them to avoid harm and plan effective action [19]. In the online community, norms of cooperation convey the signal that social interaction within the community should be carried out in a cooperative manner. By signifying how individuals should behave and interact in the online community, norms of cooperation reduce individuals’ uncertainty about their self-concept in the online community. This in turn strengthens individuals’ identification with the online community. Therefore, this leads to the following hypothesis.

\[ H9: \text{Norms of cooperation will have a positive effect on community identification.} \]

3. Method

3.1. Sample and data collection

In this study, the population of interest is the individuals who have had knowledge exchange experience in online communities. This population was chosen because the respondents should at least have some understanding of the online community systems and the knowledge exchange activities in online communities so as to provide opinions on most of the survey questions. Since the focus of this study is on knowledge exchange, we limit our scope of research sites to one type of communities classified by Armstrong and Hagel [2] as the community of common interest or information exchange.

A total of 32 online communities were selected for data collection. The number of members of these online communities ranged from 15,067 to 7,744,297. Since there was no central means available to identify the registered online community members or to contact each online community user directly at the time of this study, we adopted a non-random sampling approach and publicized our survey invitation to the target respondents through a message posted on the discussion threads of each online community. In each online community, a formal request detailing the purpose of this study together with a hyperlink connecting to our Web survey were posted on the discussion forums, and community members were invited to fill out the online questionnaire. By the time this Web survey was concluded, 386 complete responses were received.

We noted that the lack of a central access to the online community users has restricted the way to recruit the survey participants for this study. As our survey request was announced in the online communities, people who were less-active users of the online community systems, i.e., those users who login infrequently, might miss our posted request and thus will not response to the survey questionnaire [4]. To accommodate this limitation, we also conducted an offline survey through distributing paper questionnaires to a sample of students and alumni from the universities in Hong Kong. Of the 100 paper questionnaires distributed, 62 complete questionnaires were returned, showing an effective response rate of 62 percent.

Overall, the 62 responses collected from the paper-based survey and the 386 responses obtained from the Web survey provided a total of 448 usable responses for data analysis. The entire sample comprises 199 males and 248 females. Respondents range in age from 15 to 70 years. Ninety-one percent of the respondents have at least college level of education. In terms of occupation, the respondents are mainly full-time students (36.8%) or full-time employees (45.1%); only a small number of them are self-employed (1.8%). Some of the respondents involve in part-time working and studying (6.7%) while the rest covers the groups of “unemployed”, “retired”, or “others.” Sixty-four percent of them have participated in the knowledge exchange activities of online communities (e.g., knowledge seeking or knowledge contribution) for over 10 months.

3.2. Measurement

Wherever possible, measurement items were adopted from pre-validated scales and reworded to fit the context of this study. Otherwise, new measures were developed based on relevant theories and prior studies. We might sometimes combine items from scales that measure the same construct to better cover our conceptualization of the constructs.

Knowledge contribution was operationalized as the extent to which an individual intends to contribute knowledge to the online community by making his/her experience, know-how, or expertise available to others through the online community system. It was measured using one item adapted from Ma and Agarwal’s [26] knowledge contribution scale and three items adapted from Bock et al.’s [8] intention to share knowledge scale. A sample item is “I will try to share my expertise
from my education or training with other community participants.”

Anticipated status enhancement was operationalized as the extent to which an individual believes that he/she can gain respect or recognition from others by contributing knowledge to the online community. It was measured using two items adapted from Kankanhalli et al.’s [21] image scale together with one item adapted from Wasko and Faraj’s [39] reputation scale. A sample item is “Contributing knowledge to the online community can improve other community participants’ recognition of me.”

Community identification was operationalized as the extent to which an individual has a feeling of common fate, belongingness, and pride with the online community. It was measured using one item adapted from Wasko and Faraj’s [39] commitment scale and three items adapted from Chiu et al.’s [12] identification scale. A sample item is “I have a feeling of togetherness or closeness in the online community.”

Instrumental network ties were operationalized as the extent to which an individual has any personal contacts or acquaintances in the online community who can serve as his/her source of information, expertise, or advice. Expressive network ties were operationalized as the extent to which an individual has any personal contacts or acquaintances in the online community who can provide him/her with friendship and emotional support. This operationalization captures both the quantity (the number of personal contacts maintained by one) and content (the kind of resources one can access through these contacts) of network ties maintained by an individual in the online community. Because there are no suitable existing measures for instrumental network ties and expressive network ties, their measurements were newly developed based on relevant literatures. Particularly, the network measures adopted in Brass’s [9] study, Ibarra and Andrews’s [20] study, and Westphal et al.’s [40] study were used as a guide to design the measurement items. A sample item for measuring instrumental network ties is “In this online community, I know many people who can provide useful inputs to my questions or problems.” A sample item for measuring expressive network ties is “In this online community, I know many people whom I consider friends.”

Shared language was operationalized as the extent to which a common system of meanings, terms, wording, and narrative forms is available in the online community to allow meaningful communication among the online community members. It was measured using three items modified from Chiu et al.’s [12] shared language scale. A sample measurement item is “I think that there are terms or jargons that are commonly understood by the community participants.”

Community trustworthiness was operationalized as the extent to which an individual is willing to accept vulnerability based on the belief that appropriate conditions exist in the online community to ensure knowledge exchange activities can take place competently, reliably, and with integrity. It was measured using two items adapted from Butler’s [10] study and two items adapted from Pavlou and Gefen’s [32] study. A sample measurement item is “I think that this online community has high integrity as a place for knowledge exchange.”

Norms of cooperation was operationalized as the extent to which there are prevailing norms in place to encourage cooperative interaction and knowledge exchange in the online community. It was measured using three items adapted from Kankanhalli et al.’s [21] pro-sharing norms scale. A sample item is “Generally, the community participants are willing to value and respond to different views in the online community.”

4. Analysis and results

The research model was tested using the partial least squares (PLS) approach of structural equation modeling via SmartPLS [35]. All measured items were modeled as reflective indicators of their corresponding constructs and path significances were estimated with the 1000-resample bootstrapping technique. Following the recommended two-stage procedures [18], the measurement model was first assessed using confirmatory factor analysis (CFA); then, the structural relationships among constructs were examined.

4.1. Measurement model

To test for the adequacy of the measurement model, both convergent and discriminant validities were assessed. As shown in Table 1, the composite reliabilities of all constructs exceed the recommended level of 0.70, indicating adequate internal consistency [3]. Besides, all AVEs are greater than the generally recognized 0.50 cutoff. This suggests that the constructs capture much higher construct-related variance than the error variance [16] and the measurement model exhibits convergent validity.

Discriminant validity was assessed by comparing the square root of the AVE with the inter-construct correlations. As shown in Table 2, all values for the square root of AVE displayed in the diagonal are greater than the off-diagonal elements in the corresponding rows and columns. Also, the inter-construct correlations are all well below the 0.90 threshold. This shows that the constructs are distinct from one another.
4.2. Structural model analysis

The PLS results of the structural model analysis is illustrated in Figure 1, which presents the standardized path coefficients, path significance, and variance explained (R²) for each dependent variable. Overall, the patterns of the causal relationships are consistent with those predicted by the research model.

As shown in Figure 1, the proposed instrumental motivation – anticipated status enhancement (b = 0.38) and consummatory motivation – community identification (b = 0.41) are positively related to knowledge contribution. As indicated by the path coefficients, anticipated status enhancement and community identification exert comparable influences on knowledge contribution. Altogether, anticipated status enhancement and community identification account for 49 percent of the variance in knowledge contribution. These results provide support to hypotheses H1 and H2.

Supporting hypotheses H3, H4, H5, and H6, both instrumental network ties and expressive network ties, which represent the structural aspect of social capital, are positively related to anticipated status enhancement and community identification. While instrumental network ties (b = 0.29) and expressive network ties (b = 0.26) have similar impacts on anticipated status enhancement, their influences on community identification are quite different. It is found that the effect of expressive network ties on community identification (b = 0.30) is relatively stronger than that of instrumental network ties (b = 0.14).

For the relational aspect of social capital, the results show that both community trustworthiness (b = 0.30) and norms of cooperation (b = 0.27) are positively related to community identification. This provides support to hypotheses H8 and H9. Contrary to expectation, shared language, which represents the cognitive aspect of social capital, has no significant impact on community identification, and thereby hypothesis H7 is not supported.

4.3. Mediation analysis

We also test the extent to which anticipated status enhancement and community identification would mediate the effect of social capital on knowledge contribution. The mediation analysis was based on Sobel’s [36] product-of-coefficients approach (also called the Sobel test). Due to the space limit, we do not describe the test in detail here. The results indicated that except the indirect effect of shared language on knowledge contribution, the indirect effects of all other social capital constructs on knowledge contribution are statistically significant at 0.01 level.

5. Discussion and conclusion

In our research model, we have introduced anticipated status enhancement and community identification as mediators to explain the effect of social capital on knowledge contribution. Overall, the results from data analysis provide support for the validity and usefulness of the research model in explaining individuals’ intention to contribute knowledge in online communities.

While existing body of research suggests that social capital is positively related to knowledge contribution, the precise reasons that underlie this relationship are not well-established. As we have pointed out in the introduction, social capital provides favorable conditions for knowledge sharing but does not incorporate the motivational content needed to induce an intention to act within a person. What is missing in the extant literature is a thorough understanding on the causal mechanism that explains how and why social capital fosters knowledge contribution. Attempting to apply social capital to predict and explain knowledge contribution without understanding the possible causal mechanism is likely to result in theories that are incomplete. By theorizing and validating the mediating role of anticipated status enhancement and community identification, this study clarifies the mechanisms by which social capital affects knowledge contribution behavior.

The results of this study illustrate that anticipated status enhancement and community identification mediate the effect of instrumental network ties, expressive network ties, community trustworthiness, and norms of cooperation on knowledge contribution. These findings provide useful insights for the development of the social capital theory. They also have important implications for future research that applies the social capital theory to understand knowledge contribution and for the interpretation of the findings of prior studies in this area. Our detection of these mediating effects highlights the need to account for the role of anticipated status enhancement and community identification when developing any social capital model of knowledge contribution in future research. Otherwise, conflicting results concerning the relationship between social capital and knowledge contribution may arise, because other factors may increase anticipated status enhancement and community identification as long as the effect of social capital on knowledge contribution is not significant.

This study has also refined the conceptualization and operationalization of network ties. By decomposing the overall construct of network ties into instrumental network ties and expressive network ties
based on their distinctive tie content, our study addresses the calls in the literature for more attention to the qualitative characteristics of social relations [15,33]. This also renders a better understanding of the effects of network ties on knowledge contribution behavior. If the construct of network ties has not been decomposed into instrumental network ties and expressive network ties, the different pattern of effects on the mediators exerted by these two types of ties may not be detected. Thus, our findings provide useful insights about the importance of accounting for the content of network ties when conceptualizing and measuring the construct.

Shared language is found not to have significant relationship with community identification. We hypothesized that shared language can strengthen identification because it helps to convey the salient and distinctive aspects of the online community, which allows individuals to construct their community identities. Re-reading the previous studies that find positive relationship between shared language and group identity, we find that they are studying groups that are distinctively different in their study contexts, like Chinese in Australia [30] or Danes expatriates in England [23]. However, in online communities where interaction among individuals is restricted to text-based communication, many social cues to their tones and manner of communication are reduced. Accordingly, cues to the distinctive aspect of the online community conveyed through the use of shared language among its members may also be reduced. The shared language formed in the online communities that we studied being less distinctive may lead to the non-significant result that we found.

Except shared language, the existent of social capital does facilitate the development of the motivation. Therefore, means should be derived to build the social capital of the participants and the communities. Moreover, other resources aside from social capital may also help develop the identification of the members or enhance their status; identifying these resources can help improving the willingness of the members to share knowledge.

Anticipated status enhancement and community identification jointly account for only 49 percent of the variance in knowledge contribution. Therefore, above half of the variance has not been explained. Future study can identify other motivational factors and study their effect on knowledge contribution.

** Figure 1. PLS analysis results of structural model **
Table 1. Results of confirmatory factor analysis

<table>
<thead>
<tr>
<th>Construct Code</th>
<th>Item Code</th>
<th>Loading</th>
<th>T-value</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TiesIns</td>
<td>TiesIns1</td>
<td>0.90</td>
<td>67.09</td>
<td>0.94</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>TiesIns2</td>
<td>0.92</td>
<td>96.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TiesIns3</td>
<td>0.92</td>
<td>83.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TiesExp</td>
<td>TiesExp1</td>
<td>0.94</td>
<td>118.59</td>
<td>0.96</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>TiesExp2</td>
<td>0.94</td>
<td>103.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TiesExp3</td>
<td>0.95</td>
<td>145.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ShaLang</td>
<td>ShaLang1</td>
<td>0.75</td>
<td>15.83</td>
<td>0.86</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>ShaLang2</td>
<td>0.86</td>
<td>47.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ShaLang3</td>
<td>0.84</td>
<td>38.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>Trust1</td>
<td>0.91</td>
<td>77.98</td>
<td>0.96</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>Trust2</td>
<td>0.90</td>
<td>65.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trust3</td>
<td>0.94</td>
<td>111.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trust4</td>
<td>0.92</td>
<td>78.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NormCop</td>
<td>NormCop1</td>
<td>0.88</td>
<td>66.46</td>
<td>0.90</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>NormCop2</td>
<td>0.85</td>
<td>33.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NormCop3</td>
<td>0.87</td>
<td>48.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Status1</td>
<td>0.94</td>
<td>107.69</td>
<td>0.96</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>Status2</td>
<td>0.95</td>
<td>145.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Status3</td>
<td>0.93</td>
<td>101.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ident</td>
<td>Ident1</td>
<td>0.86</td>
<td>53.94</td>
<td>0.94</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>Ident2</td>
<td>0.94</td>
<td>124.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ident3</td>
<td>0.91</td>
<td>81.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ident4</td>
<td>0.89</td>
<td>74.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KnoCon</td>
<td>KnoCon1</td>
<td>0.92</td>
<td>90.60</td>
<td>0.95</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>KnoCon2</td>
<td>0.88</td>
<td>59.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>KnoCon3</td>
<td>0.90</td>
<td>63.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>KnoCon4</td>
<td>0.92</td>
<td>78.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: TiesIns = Instrumental network ties; TiesExp = Expressive network ties; ShaLang = Shared language; Trust = Community trustworthiness; NormCop = Norms of cooperation; Status = Anticipated status enhancement; Ident = Community identification; KnoCon = Knowledge contribution

Table 2. Correlations among constructs

<table>
<thead>
<tr>
<th>Construct Code</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>TiesIns</td>
<td>0.92</td>
<td>0.69</td>
<td>0.35</td>
<td>0.42</td>
<td>0.46</td>
<td>0.58</td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td>TiesExp</td>
<td>0.69</td>
<td>0.94</td>
<td>0.30</td>
<td>0.39</td>
<td>0.36</td>
<td>0.46</td>
<td>0.61</td>
<td>0.41</td>
</tr>
<tr>
<td>ShaLang</td>
<td>0.35</td>
<td>0.30</td>
<td>0.82</td>
<td>0.38</td>
<td>0.40</td>
<td>0.42</td>
<td>0.36</td>
<td>0.42</td>
</tr>
<tr>
<td>Trust</td>
<td>0.42</td>
<td>0.39</td>
<td>0.38</td>
<td>0.92</td>
<td>0.62</td>
<td>0.62</td>
<td>0.40</td>
<td>0.64</td>
</tr>
<tr>
<td>NormCop</td>
<td>0.42</td>
<td>0.36</td>
<td>0.40</td>
<td>0.62</td>
<td>0.87</td>
<td>0.46</td>
<td>0.62</td>
<td>0.51</td>
</tr>
<tr>
<td>Status</td>
<td>0.46</td>
<td>0.46</td>
<td>0.42</td>
<td>0.40</td>
<td>0.46</td>
<td>0.94</td>
<td>0.58</td>
<td>0.62</td>
</tr>
<tr>
<td>Ident</td>
<td>0.58</td>
<td>0.61</td>
<td>0.36</td>
<td>0.64</td>
<td>0.62</td>
<td>0.58</td>
<td>0.90</td>
<td>0.63</td>
</tr>
<tr>
<td>KnoCon</td>
<td>0.55</td>
<td>0.41</td>
<td>0.42</td>
<td>0.43</td>
<td>0.51</td>
<td>0.62</td>
<td>0.63</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Note: All correlation coefficients are statistically significant at the 0.01 level (2-tailed). The shaded diagonal elements (in bold) represent square root of AVE for that construct.

6. References


