

DRAFT

Moderating Role of Self-Efficacy on Social-Exchange Factors and Knowledge Sharing in Online Customer Communities

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ABSTRACT

Customers are now actively participating and contributing their knowledge in online communities. Understanding their motivations in sharing knowledge would benefit organization in utilizing their knowledge. This paper offers a theoretical conceptualization and empirical evidence of the moderating role of self-efficacy on the relationship between social exchange factors and knowledge sharing among members of Online Customer Communities. In other words, this paper examines that, in online customer communities' context, whether the social exchange motivators have a stronger impact on knowledge sharing behavior in people with high self-efficacy than in those with low self-efficacy. It is found that self-efficacy moderates the effects of altruism and reciprocity on knowledge sharing behavior. An understanding of self-efficacy role in knowledge sharing behavior will assist community administrator in encouraging knowledge sharing in the knowledge-based communities

Keyword: Self-efficacy, knowledge sharing, social-exchange theory

1. Introduction

Although there are several studies suggest the factors that affect knowledge sharing behavior, few empirical studies of knowledge sharing among customers in online communities have been studied. Rather, the focus has been on knowledge sharing in organization context. Moreover, the collective of literatures about customer knowledge and online customer communities were focusing on the knowledge application and its value in terms of organization performance. There is a dearth of research on customer knowledge sharing, regardless the growing number of online customer communities. Another concern is the inconsistency in the findings of factors in knowledge sharing and varied across different theories. There is the possibility of unrecognized factors or relationship is overlooked. From the review of previous studies concerned social cognitive theory and social exchange theory, there is the possibility of the different level in self-efficacy beliefs may also affect the motivations

and knowledge sharing behavior of customers and even moderating them, which is not yet under studied. The purpose of this study was to first empirically examine how the motivations, based on social exchange theory, may influence knowledge sharing behavior under an online customer community's context. Second, it is to explore the proposition that customer's self-efficacy beliefs may moderate the effects of these motivators on knowledge sharing behavior.

2. Conceptual Framework

1.1. Online customer communities

An online community is usually referred as a group of people who interact in a online environment, which supported by information and communication technology. The community has a purpose and are guided by norms and policies (Preece, Maloney-Krichmar, & Abras, 2003). The online customer community is, however, the interaction of a group of customer via communication and network technology on particular topics, which usually related to the particular's type of products and services. The communication technology and the Internet provide customers with new a borderless space, where they can address and learn about products and services on their own or through the collective knowledge of other customers. Therefore, customers are now shifting their roles from a passive player to an active player in the business (Prahalad & Ramaswamy, 2000). The online customer communities can be formed and organized either by a certain company (Erat, Desouza, Schfer-Jugel, & Kurzawa, 2006) or by a group of customers themselves. The communities provided by a company are usually limited their discussion on that particular companies' products and services. On the other hand, the communities owned by customer themselves usually not limited themselves at a particular company or brand but any companies with the related products and service in interests. This study studies the latter type of online customer communities, which organized by customers themselves, to examine the behavior of customers with no interference of a company management.

1.2. Knowledge sharing

Knowledge sharing is one of a knowledge management process. The knowledge management process covers other essential processes in knowledge management. It consists of four steps – knowledge creation, knowledge sharing, knowledge storage, and knowledge application (Alavi & Leidner, 2001). When there is knowledge gap amongst individuals, knowledge sharing will be occurred to fill such gap. Knowledge sharing takes place between at least two parties - the source of knowledge and the

recipient of knowledge. Hendriks (1999) clearly stated that knowledge sharing implies a relationship between the one that possesses the knowledge and the other that acquires the knowledge. The recipient will demand for knowledge and demanded knowledge will be supplied by the source who occupied that knowledge, through communication. The source party has to convert or externalize their tacit knowledge into a form that can be understood, absorbed, and used by others (Hendriks, 1999; Ipe, 2003). In organization, knowledge sharing implies the behavior of sharing one's acquired knowledge with other members within one's organization (Ryu, Hob, & Han, 2003). Davenport (1997; as quoted in Ipe, 2003) also defined sharing as a conscious, voluntary act done by an individual exchanging their knowledge, which is normally happened in online customer communities, where each customer or member does not have obligation to share their knowledge like in organization practice. The common tools used in online customer communities in sharing knowledge are, for example, webboard and personal blogs.

1.3. Knowledge Sharing and Social-Exchange Theory

Social-Exchange Theory (SET) is emerged in sociology and social psychology area. Social exchange theory views interpersonal interactions as cost-benefit perspective of the intangible resources. It has been applied across different area such as social power, networks, board independence, organizational justice, psychological contracts, and leadership (Cropanzano & Mitchell, 2005). According to Homan (1958), social exchange theory involved,

“The exchange of activity, tangible or intangible, and more or less rewarding or costly, between at least two persons.”

Homan presumes that individual is willing to exchange according to their perceived profits gained from the balance between reward and costs, and that the exchange is an obligatory expecting. In order to facilitate exchange process, rules of exchange has been referred to as guidelines. The basic and common rule of exchange corresponding to Homan is reciprocity (Cropanzano & Mitchell, 2005).

Reciprocity refers to a set of socially accepted rules regarding a transaction in which a party extending a resource to another party obligates the latter to return the favor (Wu et al., 2006). In knowledge sharing context, reciprocity infers as the belief that current contribution to would lead to future request for knowledge being met (Davenport & Prusak, 1998; Hopple & Orhun, 2006; Wu, et al., 2006). Based on reciprocity, members of customer community will share their knowledge with the expectation of receiving knowledge back from other members in community. Several studies provide the empirical evidence for relationship between reciprocity and knowledge sharing that higher level of reciprocity affects higher knowledge sharing (Ipe, 2003; Lin,

2007a). In online customer community, members may share their knowledge and expect their contribution to be recognized by other members. Then, in the future other members will reciprocate their contribution.

Hypothesis 1: Reciprocity will positively affect the knowledge sharing behavior of members of online customer community

Although, referring to the same construct, reciprocity, Blau (1964) offers the slightly variation of its definition.

“The voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact that it is more likely in social exchange for the nature of obligations involved in the exchange to remain unspecified, at least initially”

Blau’s social exchange is the exchange of resources with no predefined rewards and returns (Cook & Rice, 2003). While Homan’s definition assumes that both sides of exchange will rationally follow the same reciprocity rules, this will not always happen. Meeker (1971, as quoted in Cropanzano & Mitchell, 2005) suggests that people do not always behave rationally and therefore adds additional exchange rules. Blau’s definition of social exchange is corresponding to another exchange rule, called altruism, suggested by (Cropanzano & Mitchell, 2005) Altruism is a rule whereby we seek to benefit another person even at an absolute cost to ourselves. It involves positive level of contribution while contributions are not related to the contributions of others (Croson, 2007). In knowledge sharing studies, altruism is also found positively affecting knowledge sharing in several papers (Hopple & Orhun, 2006; Hsu & Lin, 2008; Lin, 2007a, 2007b). Members of customer community also contribute their knowledge with no expectation of returned favor, especially that members possess more knowledge than most of members in the community.

Hypothesis 2: Altruism will positively affect the knowledge sharing behavior of members of online customer community

1.4. Self-efficacy

Self-efficacy refers to the individual’s judgment of his capabilities to contribute to the community (G. W. Bock & Kim, 2002). In knowledge sharing research, several studies show that self-efficacy is significantly affecting attitudes toward knowledge (G. Bock, Kim, Lee, & Zmud, 2005; Hopple & Orhun, 2006; Lin, 2007a, 2007b; Thomas-Hunt, Ogden, & Neale, 2003). However, none of these studies tried to explore it as the moderator.

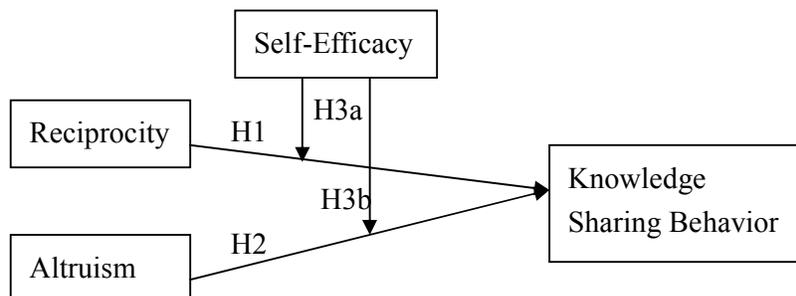
Bandura (1993) suggests that through the cognitive process of self-efficacy beliefs those who have higher level of self-efficacy have higher confidence on ability to achieve better performance under the supporting factors. On the other hand, those

who have doubt on the efficacy tend to perceive more failure scenarios and, therefore, likely to affecting their actual performance. For that reason, there are several studies on moderating effect of self-efficacy, however, mostly in other areas. Brown et al. (1989) studied on the moderating effects of academic self-efficacy beliefs on the relationship of scholastic aptitude to academic achievement. They found that the grades and persistence of lower aptitude students were facilitated if they possessed high self-efficacy beliefs. Jones (1986) studied the moderating effect of newcomers' self-efficacy on newcomers' on the influence of institutionalized tactics on role orientation. The study suggests that newcomers with high in self-efficacy will tend to define situations themselves even when their roles or progressions in organization are defined. VanYperen (1998) also suggested that the newcomer nurses who have weak self-efficacy beliefs feel sensitive to the degree of informational support which affecting the burnout symptoms. Another example is from Saks (1995). His study shows that in newcomers who had low levels of initial self-efficacy have strong effects from training on their performance.

Despite the difference in area of the studies, the studies are mostly concerning the moderating effects of self-efficacy on relationship of studied factors to skill/knowledge related performance. People with the higher level of self-efficacy tend to facilitate the stronger effect of factors on performance. Past studies on self-efficacy as moderator are concerning on the self-efficacy of the newcomers in the organization as the ones with lower level of self-efficacy. Comparing to knowledge management field, the knowledge sharing is happened because of knowledge gap between two parties - the source of knowledge and the recipient of knowledge in the online customer communities. Considering the knowledge sharing behavior as the performance of the source party, self-efficacy is, therefore, hypothesized to have the moderating effects on the factors and knowledge sharing behavior, which is the purpose of this study.

Figure 1

Research framework



Hypothesis 3a: The reciprocity has a stronger influence on knowledge sharing behavior in individual with high self-efficacy.

Hypothesis 3b: The altruism has a stronger influence on knowledge sharing behavior in individual with high self-efficacy

Table 1 will provide the summary definition of construct shown in the Figure 1, the research framework.

Table 1
Construct Definitions

Construct	Definition	Reference
Self-efficacy	The individual's judgment of his capabilities to contribute to the community	(G. W. Bock & Kim, 2002)
Altruism	A willingness whereby individual member seek to benefit another member even at an absolute cost to himself.	(Cropanzano & Mitchell, 2005)
Reciprocity	The belief that current knowledge contribution to another party lead to future request for knowledge being met	(Davenport & Prusak, 1998; Hopple & Orhun, 2006)
Knowledge sharing behavior	The degree to which individual member actually share his knowledge with others	(Ajzen, 1991; Lin & Lee, 2004)

3. Method

1.5. Respondents and procedures

To explore the knowledge sharing behavior in online customer communities, the communities with ongoing discussion on specific knowledge and skills are preferable. The photographing community is selected as it has both discussion on related products and technical skills. Due to low response rate in online survey is common, the growing numbers of communities and their members would provide more opportunity for researcher to be able to gather higher numbers of respondent. Three Thai online customer communities in photographing are initially selected – two are large scale communities and one is a small-local community. The online questionnaires are posted along with a collection of photo to catch the attention of

community members. Due to the fast moving discussion, the researcher had to keep replying the thread to keep it appeared in the front page. Unfortunately, the response rate is still low; therefore, another three communities were added to the survey. Total 65 cases are collected with 8 women and 57 men. The majority of the respondents are between 25 to 35 years old (44.6%). 93.8% are amateur photographers. Only 6.2% are professional photographers.

1.6. Measures

Self-efficacy measures are adapted from Lin (2007a; 2007b, Conbrach's Alpha = 0.86). Because the original scale is developed for measuring self-efficacy in organization knowledge sharing context, each item is rewrite to be suitable to customer communities environment and some irrelevant items are excluded. Two new items are developed. Self—efficacy scale consists of 4 items scored on 5-point Likert scale ranging from “strongly agree” to “strongly disagree” (Conbrach's Alpha =0.88). Altruism measures are adapted from Podsakoff, MacKenzie, Moorman, & Fetter (1990, Conbrach's Alpha = 0.85). The scale consists of 4 items scored on 5-point Likert scale ranging from “strongly agree” to “strongly disagree” (Conbrach's Alpha =0.92).

Table 2

Rotated factor loading from factor analysis

Items	Factors ^a	
	1	2
Altruism 1	.905	
Altruism 2	.922	
Altruism 3	.902	
Altruism 4	.692	.523
Reciprocity 1		.622
Reciprocity 2		.648
Reciprocity 3		.879
Reciprocity 4		.841

^a Only loading above .50 are presented

Reciprocity measures are adapted from Wu et al. (2006, Conbrach's Alpha = 0.83) combined with Lin (2007a, Conbrach's Alpha = 0.81). The scale consists of 4 items scored on 5-point Likert scale ranging from “strongly agree” to “strongly disagree” (Conbrach's Alpha =0.78).

Knowledge sharing behavior measures are adapted from Hooff & Weenen (2004, Conbrach's Alpha = 0.86) and Lin (2007b, Conbrach's Alpha = 0.80). The scale

consists of 4 items scored on 5-point Likert scale ranging from “strongly agree” to “strongly disagree” (Conbrach’s Alpha =0.79).

To investigate the construct validity of altruism and reciprocity, varimax factor analysis is performed. Table 2 shows that all altruism items load in same factor 1 and all reciprocity items load in same factor 2, with Kaiser-Meyer-Olkin Measure of Sampling Adequacy values equals to .795.

4. Results

The Pearson’s correlation results in Table 3 indicate that altruism, reciprocity, self- and knowledge sharing behavior are significantly and positively correlated. The self-efficacy also significantly correlates with altruism (.642). In addition, Table 3 represents the moderating effects of self-efficacy on the Correlations between Social-Exchange Factors and Knowledge Sharing Behavior. The self-efficacy is categorized into two groups, high- and low-self-efficacy groups, on the basis of median split procedures (Jones, 1986). The results show that although altruism and reciprocity seems to significantly correlate with knowledge sharing behavior, they are actually affected by the self-efficacy as well. On another word, altruism combined with low self-efficacy beliefs will not make any different on knowledge sharing behavior, so does reciprocity.

Table 3

Correlations and Moderating Effects on Correlations between Social-Exchange Factors and Knowledge Sharing Behavior

Social-exchange factors	Correlation with Knowledge sharing behavior	Correlation with Knowledge sharing behavior	
		High self-efficacy	Low self-efficacy
Altruism	.538**	.599**	.103
Reciprocity	.283*	.468*	.282
Self-efficacy	.556**		

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

To further examine whether reciprocity and altruism will positively affect the knowledge sharing behavior of members of online customer community, as proposed in Hypothesis 1 and 2, respectively. The multiple regression is used in examine the cause and effect relationship of these two factors. Table 4 shows the result of multiple regression analysis. Both altruism and reciprocity are found significantly and

positively affecting knowledge sharing behavior. When member has high level of altruism, there is higher chance that such member will share their knowledge to other. Between altruism and reciprocity, altruism contains the higher impact on knowledge sharing behavior. The results from Table 4, then, both hypothesis 1 and 2 are fully supported.

Table 4

Coefficient of Social-Exchange Factors and Knowledge Sharing Behavior

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	9.21E-017	.098		.000	1.000
Altruism	.526	.099	.538	5.338	.000
Reciprocity	.276	.099	.283	2.803	.007

a Dependent Variable: Knowledge sharing behavior

To further investigate on the moderating effects of self-efficacy, the procedure suggested by Holmbeck (1997) is adopted. First, the social-exchange factors and moderators will be centered to eliminate multicollinearity effects between the factors and the moderator, and the interaction. The altruism, reciprocity, and self-efficacy are separated into high- and low- groups. They will be tested and compared using stepwise multiple regression analysis. R-square and change in R-square will be compared to examine whether there is a significant change after taking self-efficacy into account.

Table 5

Moderating effects: Hierarchical Multiple Regression Analysis on Knowledge Sharing Behavior

Social-exchange factors	R ²	R ² Change
Altruism	.202	.202**
Altruism x Self-efficacy	.321	.119**
Reciprocity	.040	.040
Reciprocity x Self-efficacy	.304	.264**
Altruism x Reciprocity	.240	.240**
Altruism x Reciprocity x Self-efficacy	.349	.109**

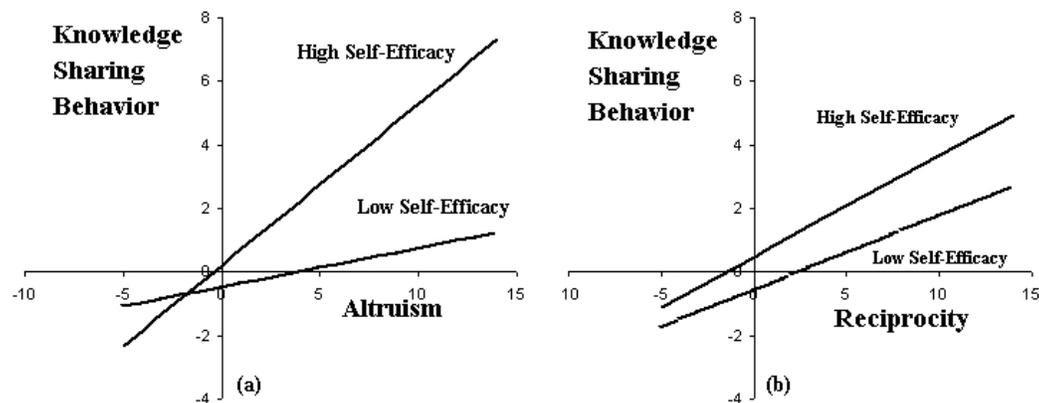
**F change is significant at the 0.01 level (2-tailed)

The results of regression analysis are presented in Table 5. Knowledge sharing behavior is entered as a dependent variable. The altruism is entered first in the first step and accounted for 20% of the variance in the criterion. The step was identical for both reciprocity and the interaction between altruism and reciprocity. Entering self-efficacy leads to a significant increase of R-squared. And it also generated the same result for the rest models. Therefore, the interaction between self-efficacy and altruism on knowledge sharing behavior was significant. The interaction between self-efficacy and reciprocity was also significant. The directions of these significant were shown in Figure 2.

Figure 2 depicts the moderating effect of self-efficacy by showing two regression lines for regression of (a) altruism and (b) reciprocity on knowledge sharing behavior, one line for the high and another one for the low self-efficacy subgroups.

Figure 2

Moderating Effect of Self-Efficacy on the relation between Social-Exchange Factors and Knowledge Sharing Behavior



The regression line in Figure 2(a) suggests that members with low self efficacy won't contribute much regardless the altruism level, which is corresponding to the results from Table 3 that altruism is not significantly related to knowledge sharing behavior in low self-efficacy subgroup. On the other hand; members with high self efficacy tend to contribute in higher rate when they have high level of altruism. When altruism is lower to the certain point the member will not share their knowledge at all regardless the level of self-efficacy. Figure 2(b) depicts that role of self-efficacy was to facilitate knowledge sharing across all level of reciprocity. Or in another word, members with high self-efficacy are likely to share more knowledge regardless of their level of reciprocity. According to the result shown in Table 3, 5, and figure 2, hypothesis 3a and 3b are fully supported.

5. Discussion

Confirming the moderating effects of self-efficacy might not be an exciting new discovery since this could come up using common sense. However, in the field of knowledge management, it has not been focused. The findings help researcher understand more on the inconsistency of its previous studies. However, caution should be exercised in applying this model in other context. This moderating effect of self-efficacy is studied under the environments that members' level of knowledge is varied and monetary rewards are not involved. Under the environment that the community consists of members equipped equally knowledge and skill, the role of self-efficacy might be different. The sample case study is Hopple & Orhun (2006)'s study on knowledge sharing in community of practice (CoP). They found out that self-efficacy is negatively related to knowledge sharing. One of the reasons is their samples are from financial industry, which most of them are either managers or specialists. In customer communities, members' knowledge and skills are varied. The knowledge sharing in the community is not a required activity, like in organization. Members are voluntarily and willingly to help and, therefore, share. That might be the reason why in this type of community, altruism is found positively significant influence knowledge sharing behavior. However, willingness to help alone might not cause them to contribute if they think they have nothing worth contribution. That is how self-efficacy plays its part.

Reciprocity is another interesting factor. Its definition is "the belief that current knowledge contribution to another party lead to future request for knowledge being met.(Davenport & Prusak, 1998)" Therefore, the result of this study could be interpreted as a member who has a higher belief in expecting return will tend to share more, in order to receive that future return. However, the interpretation seems vague, is it the level of belief or the level of expectation. To have the clearer picture of level of reciprocity, the norm of reciprocity will be discussed. According to Wu (2006), he reciprocity can also categorized into three type, first one is balanced reciprocity. It refers to situation when members contribute; they are likely to expect something equally back. Therefore, there is when members expect something more than what they contribute, it's called generalized reciprocity. On the other hand, if members feel they receive less than what they supplied, it's called negative reciprocity. Refer to Figure 2(b), if we divide the regression line into three parts, the utmost left will be negative reciprocity area. The area represents the situation when a member believes that he receive less that he contribute, therefore, he contribute less or not contribute at all. On the other hand, the area in the utmost right will be generalized reciprocity area. A member believes that he will receive more than he can contribute, he will tend to

contribute more when he has higher level of self-efficacy to reciprocate.

Another issue that should be concerned in all online survey is response bias. The response bias referred and concerned in this study is a voluntary response bias. The voluntary response bias occurs when sample members are self-selected volunteers. It is important here because the voluntary behavior is also the fundamental concept in online customer communities, where members are voluntarily contribute their knowledge and skills to the communities. Being have the voluntary bias from online survey may control the altruism level in survey response. People's willing to participate in online survey may reflect on the range of altruism factor value to be higher than it supposed to. However, the interest of this study is on the moderating effect of self-efficacy on altruism and sharing behavior, which is focus on people who have certain level of altruism but contribute differently because of different level of perceived self-efficacy. Having altruism controlled helps in signifying the effect of the moderator. The voluntary response bias will generate more serious problem if the altruism itself is examined its moderating effects.

4. Conclusion

The purpose of this paper is to explore the social exchange factors of knowledge sharing in online customer community context. The study proposed that altruism and reciprocity should be at least two factors among many others that affecting knowledge sharing behavior. The study has confirmed the proposition in online customer community context. Moreover, the study also proposed that self-efficacy has the moderating effect on those two factors and sharing behavior. The findings have fully supported the hypothesized question, which might be a contribution to the problem of inconsistency findings in knowledge sharing area. Although the study did find interesting results it still faced some problems of low response rate from online survey. Although low response rate is expected in online survey, being studying in the area of online customer communities, this situation is unavoidable. Trying to getting better response rate might be the same issue of trying to encouraging knowledge sharing. Being able to finding the useful answer for one area should be a constructive contribution to both problems of the same time.

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