

## The Role of Community Trust and Altruism in Knowledge Sharing: An Investigation of a Virtual Community of Teacher Professionals

Hsiu-Ling Chen<sup>1\*</sup>, Hsueh-Liang Fan<sup>2</sup> and Chin-Chung Tsai<sup>1</sup>

<sup>1</sup>Graduate Institute of Digital Learning and Education, National Taiwan University of Science and Technology, No. 43, Sec. 4, Keelung Rd., Taipei, 106, Taiwan // <sup>2</sup>Department of Business Administration, National Taiwan University, No. 1, Sec. 4, Roosevelt Road, Taipei, 106, Taiwan // shirley@mail.ntust.edu.tw // sam.fan@gmail.com // cct sai@mail.ntust.edu.tw

\*Corresponding author

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### ABSTRACT

The knowledge sharing process within a virtual community of teacher professionals is viewed as a social exchange process in that the knowledge sharing intention and behavior of individuals are influenced by the exchange relationship among members. However, relatively little research has focused on this approach to exploring the factors that enhance the knowledge sharing of individuals. This study aims to explore the mechanism of how individuals' knowledge sharing intention and behaviors might be altered with a sample of 332 teachers within a virtual community of teacher professionals (i.e., SCTNet) in Taiwan. After controlling for the technology support factors (i.e., perceived usefulness and perceived ease of use), we found that community trust impacts knowledge sharing intention, which in turn improves knowledge sharing behavior. Furthermore, altruism augmented the relationship between community trust and knowledge sharing intention. The positive relationship between community trust and knowledge sharing intention was stronger when teachers perceived a high level of altruism than it was with a low level of altruism.

### Keywords

Knowledge sharing, Community trust, Altruism

### Introduction

In a rapidly changing educational environment, students' learning and achievement depend upon the professional development of teachers. In response to their needs, educational research and practice has begun to emphasize the importance of teacher professional communities for improving the professional growth of teachers. The Internet enables groups of people to interconnect through virtual communities (Blanchard, 2008). Teachers within virtual communities share and exchange personal experiences of and resources for teaching (i.e., knowledge sharing); this would help their professional development and enhance their teaching quality. SCTNet is short for Smart, Creative Teachers Network, and aims to construct a teacher professional community through which members can share information, knowledge, and teaching experience (Lin, Lin, & Huang, 2008). SCTNet has become the biggest virtual community of teacher professionals in Taiwan. However, virtual communities are of limited value without rich knowledge (Chiu, Hsu, & Wang, 2006). This presents the new challenge of how to effectively motivate knowledge sharing among community members. Scholars have suggested that we could support knowledge sharing through social exchange relationships (Blanchard, 2008). Thus, the objective of this study is to adopt social exchange theory as a way of exploring the underlying mechanism that motivates knowledge sharing by community members.

Social exchange theory explains interactive relationships among individuals across various disciplines (Cropanzano & Mitchell, 2005). The theory suggests that social exchange involves various interactions that generate obligations. The interactions among individuals are also viewed as interdependent and are contingent on the actions of others (Blau, 1964; Cropanzano & Mitchell, 2005). Knowledge sharing processes within a virtual community are viewed as a social exchange relationship in which voluntary acts of individual knowledge sharing are motivated by the returns they are expected to bring to and receive from other members (Ma & Yuen, 2011). When considering the reciprocal relationship among people, community trust plays a fundamental role in knowledge sharing in virtual communities. Trust is embedded in a person or in a social network (Granovetter, 1985). When reciprocal acts occur in social interaction, individuals may trust each other and are likely to share personal feelings, information, and knowledge. In a virtual community, the members were not previously familiar with each other, and thus community trust is required for successful interaction and knowledge sharing to take place (Hsu & Lin, 2008; Ridings, Gefen, & Arinze, 2002). Prior literature has indicated that a person's behavioral intention influences subsequent behavior (Ajzen & Fishbein,

1974; Bock, Zmud, Kim, & Lee, 2005; Davis, 1989; Hsu & Lin, 2008; Webb & Sheeran, 2006). We thus hypothesize that community trust enhances knowledge sharing behavior through knowledge sharing intention.

As community trust plays a fundamental role in enhancing knowledge sharing, exactly when the influence of community trust on individuals' knowledge sharing intentions would be augmented needs to be well understood. We suggest that altruism, a kind of helping or sharing behavior (Hoffman, 1979), may augment the relationship between community trust and knowledge sharing intention. Altruism represents an individual's willingness to benefit the well-being of others on a voluntary basis without the anticipation of any form of return (Chai & Kim, 2010; Deci, 1975; Kankanhalli, Tan, & Wei, 2005). When individuals perceive an atmosphere of trust in the virtual communities, those with a high level of altruism are more likely to freely share information or discuss personal experiences in the community than those with a low level of altruism. We thus hypothesize that altruism is a moderator which augments the relationship between community trust and knowledge sharing intention.

In order to rule out extraneous influences on the relationship among community trust and altruism in knowledge sharing intention as well as knowledge sharing behavior, we have to take into account other possible confounding variables. Prior literature has indicated that technology support factors are related to knowledge sharing (Hsu & Lin, 2008; Hung & Cheng, 2013; Reychav & Te'eni, 2009). For example, Hsu and Lin (2008) found that a user's beliefs in blog usage (i.e., perceived usefulness and perceived ease of use) may affect the individual's attitudes toward participating in blog activities such as sharing information and knowledge. Hung and Cheng (2013) also found that perceived usefulness and perceived ease of use regarding a virtual community facilitated knowledge-sharing intentions. To account for this relationship, perceived usefulness and perceived ease of use were controlled in our data analysis. The control variables in our study are statistical controls rather than experimental controls; we entered the control variables into the hierarchical regression model before other independent variables (Atinc, Simmering, & Kroll, 2012). Our theoretical framework is presented in Figure 1. A detailed discussion of the proposed framework is presented below.

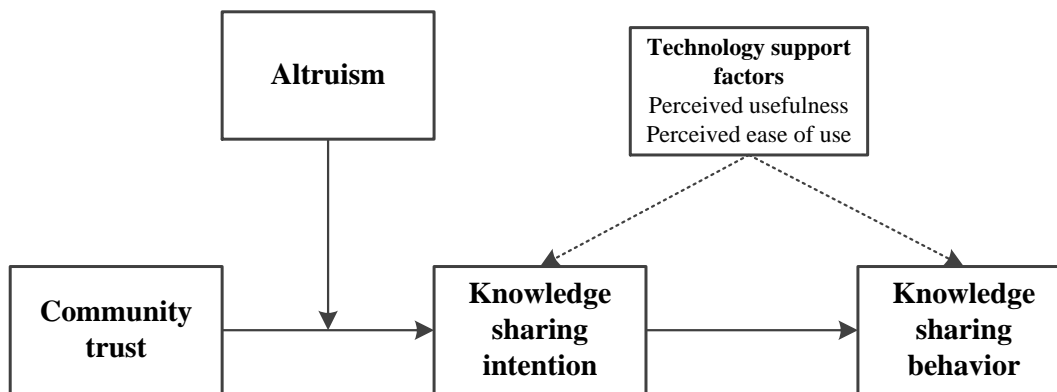


Figure 1. The research framework

### Community trust as an antecedent of knowledge sharing intention

Knowledge sharing intention refers to the willingness of individuals within a community or an organization to share with others the knowledge they own (Bock et al., 2005), while knowledge sharing behavior refers to the individuals' behaviors of sharing knowledge. According to the Theory of Reasoned Action (Ajzen & Fishbein, 1974), a person's behavior is determined by his or her intention. Prior literature suggests that a person's behavioral intention influences subsequent behavior across different contexts such as knowledge sharing (Bock et al., 2005; Chen, Chen, & Kinshuk, 2009; Hsu & Lin, 2008), the usage of information technology (Davis, 1989), and changes in social and health behavior (Webb & Sheeran, 2006). However, as outlined earlier, the availability of a virtual community does not necessarily automatically encourage individuals to share knowledge (Usono, Sharratt, Tsui, & Shekhar, 2007). We propose that community trust plays a fundamental role in knowledge sharing.

The nature of community trust is similar to that of trust. When considering different targets, scholars use different nouns to describe trust, such as organizational trust, team trust, and community trust. Community trust represents a

psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviors of another (Rousseau, Sitkin, Burt, & Camerer, 1998). The degree of vulnerability is enhanced in situations where the parties are interdependent such that the interest of one party cannot be achieved without the other (Aryee, Budhwar, & Chen, 2002). Prior literature on trust has shown that it is associated with enhanced cooperation, knowledge sharing, information sharing, problem solving, and collaborative learning (Bulu & Yildirim, 2008; Jameson, Davies, & de Freitas, 2006; Granovetter, 1985; Levin & Cross, 2004; Lewicki & Wiethoff, 2000). For example, Levin and Cross (2004) supported Granovetter's (1985) suggestion that trust is a kind of social capital which is embedded in an exchange relationship. In a face to face context, they found that when trust exists, individuals are willing to share knowledge as well as to acquire knowledge from others.

In a virtual community, the members were not previously familiar with each other, and therefore this requires building an atmosphere of trust within the community (Ridings et al., 2002). Although scholars have introduced the social exchange theory to understand individuals' motivational mechanisms behind knowledge sharing in Internet contexts such as blogs (Chai & Kim, 2010; Hsu & Lin, 2008), online learning platforms (Ma & Yuen, 2011), and virtual communities (Chiu et al., 2006; Ridings et al., 2002; Wasko & Faraj, 2005), relatively little research has provided empirical evidence of the influence of community trust on knowledge sharing within virtual communities of teacher professionals.

We hypothesize that community trust enhances knowledge sharing behavior through knowledge sharing intention. When individuals perceive a strong trust in the virtual community, they would perceive that the community provides a meaningful rationale for engaging in knowledge sharing behavior. Consequently, an individual's trust is ultimately related to his/her knowledge sharing behavior, and this linkage is mediated by the knowledge sharing intention. The above relationship indicates that knowledge sharing intention mediates the relationship between community trust and knowledge sharing behavior.

Hypothesis 1: After controlling for perceived usefulness and perceived ease of use, knowledge sharing intention mediates the extent to which community trust enhances knowledge sharing behavior.

### **The moderating role of altruism**

The hypothesized links between community trust and knowledge sharing intention shown in Figure 1 are expected to be moderated by altruism, i.e., altruism augments the community trust—knowledge sharing intention relationship. Kankanhalli et al. (2005) suggested that although there are few examples of absolute altruism (absolute lack of self-concern in the motivation for an act), relative altruism (individuals' desire to help others) is more prevalent. In our study, we adopt Kankanhalli et al.'s concept of relative altruism as our definition of altruism and use their "enjoyment in helping others scale" to measure altruism.

Altruism is not only viewed as an important value in relationship-oriented societies such as those in the Chinese-speaking world, but there is also considered to be an increasing need for the acquisition of altruistic behavior in educational systems (Baytiyeh & Pfaffman, 2010; Etxebarria et al., 1994) and volunteer communities such as religious communities and public welfare communities (Fischer & Schaffer, 1993). Prior literature has suggested that individuals' altruistic behavior can be motivated by the enjoyment of helping others. For example, in an organizational context, Kankanhalli et al. (2005) found that employees may share knowledge because they enjoy helping others (i.e., altruism). In a study of electronic communities of practice, Wasko and Faraj (2000) reported that members were willing to share personal knowledge and experiences because they wanted to contribute to the overall welfare of the community.

As mentioned earlier, the interactive relationship among individuals within the virtual community is viewed as a social exchange relationship. Individuals are not familiar with each other in such a community and thus a basic foundation for encouraging knowledge sharing is to build an atmosphere of trust. As people who trust each other, individuals who enjoy helping others are likely to exhibit greater knowledge sharing intention. For example, they would have a greater willingness to share information or discuss personal experiences in the community. Thus, we propose that altruism can enhance the association between community trust and knowledge sharing intention. Individuals who highly trust the virtual community would demonstrate a greater knowledge sharing intention with a

high level of altruism. Exploring the moderating effect of altruism offers a novel explanation of why altruism strengthens the relationship between community trust and knowledge sharing intention. According to our knowledge of the prior literature, few studies have investigated this relationship.

Hypothesis 2: After controlling for perceived usefulness and perceived ease of use, altruism will moderate the relationship between community trust and knowledge intention in such a way that the higher the frequency of altruism, the more pronounced the positive association between community trust and knowledge sharing intention will be.

## Method

### Research context and data collection

The SCTNet virtual community for teachers (<http://sctnet.edu.tw>) was investigated in this study. SCTNet was established in March 2000 as a result of the joint efforts of academic institutes and government departments in Taiwan. Based on Wenger's (1998) definition of communities of practice, SCTNet is viewed as a virtual community of practice wherein teachers engage in knowledge sharing and learning processes. Currently, additional sponsorship of the platform comes from the "achieving excellence project" and the Ministry of Education. To date (2013/06), there are 157,604 teachers registered in the community. More than 5,900 teaching resources have been uploaded, such as information regarding instructional design, personal teaching experiences, teaching cases, and instructional aided media.

For this study, teachers were asked to respond to a questionnaire through SCTNet, administered with the website manager's assistance. In total, 401 respondents completed the questionnaire survey, of which 69 were eliminated due to missing responses or the members not being teachers, leaving a total effective sample of 332. The results of the descriptive analysis show that 33.1% of the respondents were male; 6.6% were kindergarten teachers, 65.7% were elementary school teachers, 20.2% were junior high school teachers, and 7.5% were high school teachers. In addition, 79.8% of respondents had used SCTNet for more than one year; 56.1% of respondents had visited SCTNet once a week, while 21.4% had visited it once every two weeks.

### Instruments

We followed Hinkin's (1995) suggestions for administering the research instruments. First, the research instruments for this study were adapted from previously published studies which have considerable validity and reliability. Second, each measure included at least 4 items, which is the minimum number recommended for summing by Norman (2010). Third, anonymous respondents were asked to rate their perception of each item using a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). Such 5 point scales have been commonly used in prior studies as they can generate sufficient variance among respondents for subsequent statistical analysis (Hinkin, 1995). Finally, the instruments were originally designed in English; thus, the back translation method was used to avoid cultural bias and to ensure validity. The English versions were translated into Chinese by a university professor competent in both languages, and then the Chinese versions were translated back into English by a language professional, and special attention was paid to detecting misunderstandings due to translation.

### Community trust

A six-item scale was adapted from Ridings et al.'s (2002) scale, which was initially used to assess the integrity and benevolence component of trust among members of a bulletin board. The items in this study were "*I feel members of SCTNet have reciprocal trust and a reliable relationship,*" "*The members of SCTNet could usually fulfill the commitments made to others,*" "*The members of SCTNet would not knowingly do anything to disrupt the conversation of other members,*" "*The members of SCTNet behave in a consistent manner,*" "*The members of SCTNet treat others sincerely,*" and "*The members of SCTNet don't take advantage of others even though they may have opportunities to do so.*"

## **Altruism**

This scale of 4 items was taken from Kankanhalli et al.'s (2005) enjoyment in helping others scale, and was used to evaluate individuals' perceptions of the pleasure obtained from helping others through knowledge sharing within the community. The items were: *"I enjoy helping others," "I enjoy answering questions to help others," "I enjoy helping others by sharing my knowledge through SCTNet,"* and *"Sharing my knowledge with others through SCTNet gives me pleasure."*

## **Knowledge sharing intention**

We measured knowledge sharing intention using a 4-item scale modified from Moon and Kim (2001), which included three items initially used to elicit people's behavior intentions of technology use (e.g., I will frequently use WWW in the future). We modified the scale's items so that it was suitable for measuring the respondents' intention to share knowledge via SCTNet. We added one additional item for assessing knowledge sharing because of the recommendation of a minimum of four items (Norman, 2010). The items are: *"I am willing to share my knowledge with other members through SCTNet," "I will use SCTNet on a regular basis to share knowledge in the future," "I will strongly recommend that others use SCTNet to share knowledge,"* and *"It's worthwhile to share knowledge on SCTNet."*

## **Knowledge sharing behavior**

This scale with 4 items adapted from Yu, Lu, and Liu's (2010) knowledge sharing behavior scale was used to measure people's knowledge sharing behavior via a blog. We changed the target media to SCTNet. The items are: *"I often share my knowledge on SCTNet," "I often actively share my knowledge with other members on SCTNet," "I often respond to other members' comments on SCTNet,"* and *"I often participate and respond to different discussion topics on SCTNet."* We used a self-report scale of knowledge sharing behavior for three reasons: (1) all responses were anonymous meaning that we had difficulties collecting objective data from SCTNet; (2) knowledge contributors have a more accurate view of what kinds of knowledge they share than others; and (3) it is difficult to observe or count people's knowledge sharing behavior from a website (Yu et al., 2010).

## **Control variables**

As mentioned earlier, prior literature has suggested that perceived usefulness and perceived ease of use positively affect knowledge sharing (Hsu & Lin, 2008; Hung & Cheng, 2013; Reychav & Te'eni, 2009). To take these factors into account, we controlled for these two variables which were adapted from Davis's (1989) research. The five items of the perceived usefulness scale are: *"Using SCTNet for knowledge sharing would improve my work performance," "Using SCTNet for knowledge sharing would be beneficial for learning professional knowledge," "Using SCTNet for knowledge sharing would be beneficial for solving problems in my job," "Using SCTNet in my job would enable me to accomplish tasks more quickly,"* and *"I would find SCTNet useful in my job."* The five items of the perceived ease of use scale are: *"Learning to operate SCTNet would be easy for me," "I would find it easy to share knowledge through SCTNet," "Using SCTNet for knowledge sharing doesn't take too much of my time or energy," "I seldom require assistance when using SCTNet for knowledge sharing,"* and *"I would find SCTNet easy to use."*

## **Data analysis**

The instruments in this study were validated employing several approaches. Internal consistency analysis was used to calculate the reliability of each scale. Factor analysis was used to examine the factorial validity of the scales used in this study. Next, we used correlation analysis to explore the relationships among the variables in this study. Hierarchical regression analysis was used to test the research hypotheses, i.e., the mediating effect and moderating effect.

## Preliminary analysis

We used the principal component analytical method to examine the factorial validity of perceived usefulness, perceived ease of use, community trust, altruism, knowledge sharing intention, and knowledge sharing behavior. As Table 1 shows, the factor loading of each item was over the acceptable value of .70 (Tabachnick & Fidell, 2007), and the variances extracted were 67.41, 63.87, 69.11, 74.49, 75.44, and 86.53. In addition, the eigenvalues were 3.37, 3.19, 3.46, 2.98, 3.02, and 3.46. Table 1 also shows that the Cronbach's  $\alpha$  values for the instruments ranged from .85 to .95 which are above the acceptable level of .70 (DeVellis, 1991). With the acceptable factorial validity and reliability, we proceeded to explore the correlation among variables and to test the two research hypotheses. We also used confirmatory factor analysis to evaluate the Composite Reliability and Average Variance Extracted of the measurement models of altruism, knowledge sharing intention, and knowledge sharing behavior. The results indicated that the factor loading of each observed item was statistically significant and over .60, and the AVE values were .94, .94, .94, which are all over the suggested level of .50 (Anderson & Gerbing, 1988). In addition, the CR values were .67, .67, and .82, which all exceeded the acceptable level of .50 (Tabachnick & Fidell, 2007). With a well-fitting measurement model, we proceeded to test the proposed structural models.

Table 1. Factorial validity and Cronbach's  $\alpha$

Factor	Item no.	Factor loading	Eigenvalue	Variance Extracted	Cronbach's $\alpha$
Perceived usefulness	item 1	.84	3.37	67.41	.88
	item 2	.83			
	item 3	.80			
	item 4	.80			
	item 5	.83			
Perceived ease of use	item 1	.82	3.19	63.87	.85
	item 2	.83			
	item 3	.76			
	item 4	.76			
	item 5	.82			
Community trust	item 1	.82	3.46	69.11	.91
	item 2	.80			
	item 3	.80			
	item 4	.88			
	item 5	.87			
	Item 6	.82			
Altruism	item 1	.77	2.98	74.49	.89
	item 2	.90			
	item 3	.91			
	item 4	.87			
Knowledge sharing intention	item 1	.84	3.02	75.44	.89
	item 2	.88			
	item 3	.88			
	item 4	.87			
Knowledge sharing behavior	item 1	.91	3.46	86.53	.95
	item 2	.95			
	item 3	.95			
	item 4	.91			

The means, standard deviations, and correlations among variables are presented in Table 2. Most of the zero-order correlations fell in the expected directions. For instance, knowledge sharing behavior was significantly correlated with community trust ( $r = .49, p < .001$ ), altruism ( $r = .60, p < .001$ ), and knowledge sharing intention ( $r = .65, p < .001$ ), while knowledge sharing intention was significantly correlated with community trust ( $r = .57, p < .001$ ) and altruism ( $r = .66, p < .001$ ).

Table 2. Means, standard deviations, and correlations ( $n = 332$ )

Variables	M	SD	1	2	3	4	5	6
1. Perceived usefulness	4.05	.51						
2. Perceived ease of use	3.95	.57	.55***					
3. Community trust	3.78	.58	.53***	.41***				
4. Altruism	3.97	.61	.44***	.41***	.50***			
5. Knowledge sharing intention	3.97	.61	.52***	.46***	.57***	.66***		
6. Knowledge sharing behavior	3.43	.84	.42***	.36***	.49***	.60***	.65***	-

\*\*\*  $p < .001$ .

To test hypothesis 1, we argued that knowledge sharing intention mediates the relationships between community trust and knowledge sharing behavior. The mediation effect was tested following Baron and Kenny's (1986) three-step regression approach. First, the predictor (i.e., community trust) and the mediator (i.e., knowledge sharing intention) must be significantly related to the dependent variable (i.e., knowledge sharing behavior). Second, the predictor must be significantly related to the mediator. Finally, both the predictor and the mediator must be included in the regression model. When the predictor remains significant but the beta value is decreased when the mediator is included, this model represents a partial mediation model. On the contrary, if the beta value for the relationship between the predictor and the dependent variable becomes non-significant when the mediator is included, full mediation is present. As the correlation matrix (Table 2) shows, community trust, knowledge sharing intention, and knowledge sharing behavior are significantly related to each other. The results satisfy the first two criteria specified by Baron and Kenny. Below, we further test the mediation effect.

The results of the mediation analyses are presented in Table 3. In model 1, the control variables, perceived usefulness ( $\beta = .38, p < .001$ ) and perceived ease of use ( $\beta = .25, p < .01$ ) were significantly related to knowledge sharing intention. In model 3, perceived usefulness ( $\beta = .22, p < .001$ ) and perceived ease of use ( $\beta = .18, p < .01$ ) were significantly related to knowledge sharing. As models 2 and 4 indicate, after controlling for the control variables, community trust was found to be significantly related to knowledge sharing intention ( $\beta = .38, p < .001$ ), and knowledge sharing behavior ( $\beta = .35, p < .001$ ). Model 5 includes both the mediator and the predictor. The results indicate that the strength of the beta value for community trust decreased ( $\beta = .35 \rightarrow \beta = .14$ ) when knowledge sharing intention was included, but remained significant after controlling for the control variables. This result reveals that knowledge sharing intention partially mediates the relationship between community trust and knowledge sharing behavior. Furthermore, model 5 explains more variance ( $R^2 = .44$ ) in knowledge sharing behavior than model 3 ( $R^2 = .20$ ) and model 4 ( $R^2 = .28$ ), which indicates that it is meaningful to consider the influence of community trust and knowledge sharing intention on knowledge sharing behavior. Therefore, hypothesis 1 was supported.

Table 3. Regression analysis for mediation

Variables	DV = Knowledge sharing intention		DV = Knowledge sharing behavior		
	Model 1	Model 2	Model 3	Model 4	Model 5
Control					
Perceived usefulness	.38***	.22***	.32***	.17**	.06
Perceived ease of use	.25***	.18**	.18**	.12*	.03
Predictor					
Community trust		.38***		.35***	.14**
Mediator					
Knowledge sharing intention					.53***
Adjusted $R^2$	.31	.41	.20	.28	.44
F	74.99***	77.85***	41.54***	43.48***	65.94***

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Next, we argue that altruism moderates the relationship between community trust and knowledge sharing intention in Hypothesis 2. A variable is a moderator if the relationship between a predictor (community trust) and the outcome variable (knowledge sharing intention) is a function of the level of the moderator (altruism) (Howell, 2002). As Table 4 shows, altruism was introduced in model 3. After controlling for the control variables, the result indicates that altruism was significantly correlated with knowledge sharing intention ( $\beta = .46, p < .001$ ), resulting in a 14% increase in  $R^2$  ( $F = 103.63, p < .001$ ). In model 4, the interaction term is created after mean centering community

trust and altruism (Aiken & West, 1991). As shown in Table 4, the interaction term was significantly associated with knowledge sharing intention ( $\beta = .08, p = .034$ ), indicating that altruism moderated the relationship between community identity and knowledge sharing intention. Thus, Hypothesis 2 is supported.

Table 4. Regression analysis for moderation

Variables	DV = Knowledge sharing intention			
	Model 1	Model 2	Model 3	Model 4
Control				
Perceived usefulness	.38***	.22***	.14**	.15**
Perceived ease of use	.25***	.18**	.09*	.09*
Predictor				
Community trust		.38***	.23***	.24***
Moderator				
Altruism			.46***	.45***
Interaction term				
Community trust $\times$ Altruism				.08*
Adjusted R <sup>2</sup>	.31	.41	.55	.56
F	76.74*	79.21***	103.63***	84.55***

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

In Figure 3, to identify the nature of the interaction, the relationship between community trust and knowledge sharing intention is plotted for high and low altruism. We also conducted a simple slopes analysis (Aiken & West, 1991). The simple slope of the regression of community trust onto knowledge sharing intention within high altruism was significant (simple slope = .388,  $t(335) = 6.955, p < .001$ ). Within high altruism, the relationship between community trust and knowledge sharing intention was also significant (simple slope = .257,  $t(335) = 4.960, p < .001$ ). This result supports our hypothesis that the relationship between community trust and knowledge sharing intention was positive and stronger in the situation of a high level of altruism than it was with a low level of altruism.

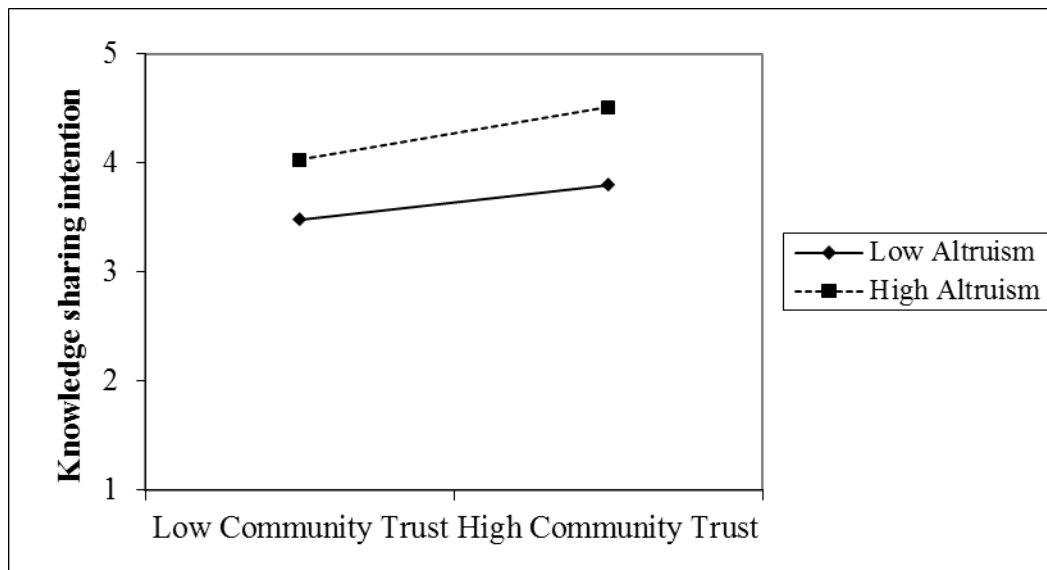


Figure 3. Simple regression lines for the effect of community trust on knowledge sharing intention at two levels of altruism

## Discussion

We tested the underlying mechanism that motivates the knowledge sharing of members within a virtual community of teacher professionals while taking into account the perceived technology support factors (i.e., perceived usefulness and perceived ease of use). Our findings suggest that community trust is fundamental to individuals' knowledge



sharing intention, and therefore enhances their knowledge sharing behavior. Moreover, altruism moderated the relationship between community trust and knowledge sharing intention. These findings offer some important theoretical implications and practical suggestions for virtual communities of teacher professional development.

### **Theoretical implications**

First, although scholars have introduced the social exchange theory to understand individuals' motivational mechanisms behind knowledge sharing in the context of the Internet such as blogs (Chai & Kim, 2010; Hsu & Lin, 2008), online learning platforms (Ma & Yuen, 2011), and virtual communities (Chiu et al., 2006; Ridings et al., 2002; Wasko & Faraj, 2005), relatively little research has provided empirical evidence of the influence of community trust on knowledge sharing within virtual communities of teacher professionals. Our research reveals that community trust enables knowledge sharing behavior through knowledge sharing intention. The results contribute to the literature on knowledge sharing and virtual communities of teacher professionals.

Second, our results indicate that community trust was more strongly associated with knowledge sharing intention within the group of respondents who reported a high level of altruism than for those with a low level of altruism. This result implies that altruism acts as a potential facilitator of knowledge sharing in a virtual community of teacher professionals. Although prior literature has suggested that individuals who enjoy helping others are likely to be voluntarily motivated to respond to others' needs (Kankanhalli et al., 2005), few studies have investigated the moderating role of altruism in the relationship between community trust and knowledge sharing intention in a virtual community. Therefore, these findings extend the current research on virtual communities by highlighting the important role of altruism in the relationship between community trust and knowledge sharing. Individuals who enjoy helping others in a trusting, reliable, and respectful community are likely to demonstrate a high level of knowledge sharing intention.

### **Practical suggestions**

Rich knowledge from community members is a critical component of virtual communities. Teachers could promote their professional growth by engaging in the knowledge sharing process. Based on the social exchange theory, our study demonstrates that individuals are likely to share knowledge if they perceive a high level of trust and altruism toward the virtual community. Both trust and altruism (Brewer, 2003) are considered as types of social capital embedded in a social network (Granovetter, 1985). An institution or an organization could mobilize such social capital through effective management practices, meaning that community members' trust and altruistic behaviors toward the virtual community could also be mobilized by adopting various strategies. From a practical standpoint, we offer several suggestions for improving community trust and altruism.

First, to encourage individuals' knowledge sharing within a virtual community so as to promote the professional development of teachers, the community management teams need to establish an atmosphere of trust. As prior literature has suggested (Levin, Whitener, & Cross, 2006; Williams, 2001), community management teams could clearly define the community's values and vision, explain to the community members the meaning of why sharing is important for teacher professional development, establish a shared understanding among members, and enrich the content and information in the community. When members realize the community's value or recognize the community as an important platform for acquiring necessary information, they are likely to visit it often and gradually feel trust in the community.

Individuals' justice perceptions in the virtual community can also lead to fewer conflicts among members and will thus enhance their willingness to share knowledge (Colquitt & Rodell, 2011; Fang & Chiu, 2010). The community management teams may need to design an appropriate mechanism for protecting the personal benefits of each individual in the knowledge sharing processes. When community members perceive that they could freely share personal experiences or discuss information related to teacher development without fear of criticism from other members, this would reduce the conflicts among community members and would be beneficial for engaging in knowledge sharing behavior.

Our results also suggest that altruism enhances the positive relationship between community trust and knowledge sharing intention. Thus, the second practical implication of our findings is to enhance teachers' altruistic motivation and behaviors through different strategies. Individuals' altruistic behavior could be improved through empathy training programs (Etxebarria et al., 1994; Grant & Berry, 2011), so that teacher education institutions could add such programs into existing teacher training programs. When individuals learn the ability to accept another person's point of view, they may come to understand individual differences and realize the value of respecting others. This would enhance their helping behaviors.

Finally, although we controlled for the influences of technology support factors on knowledge sharing, technology itself may serve as an important facilitator in enhancing trust. We suggest that community designers demonstrate what others are doing using a visual representation scheme. As community members efficiently and accurately recognize what others are doing and sharing, this may motivate their trust in the community.

### **Limitations and future directions**

Although our results contribute to the literature, there are still several limitations which point to directions for shaping future research. First, the research on knowledge sharing in online communities is interdisciplinary, so there are various taxonomies and multi-domain studies based on different theories such as personality theory, motivation theory, social cognitive theory, game theory, and system design. Research based on these different theories could provide implications for knowledge sharing and virtual communities. Thus, we suggest that future research be based on a variety of theories to identify factors (e.g., personality or contextual factors) that influence knowledge sharing, or that it explore factors that motivate altruistic behavior such as task characteristics or personality types. Furthermore, we employed self-report scales in our study, which may have some limitations in terms of the inferences which could be made. We suggest that future research use different research designs (e.g., longitudinal design or experimental design) or analytical techniques (e.g., social network analysis) to identify stronger causal inferences. Finally, we provide practical implications. The suggestions are considered as important antecedents of community trust and altruism by the prior literature. However, we still cannot be certain how people perceive community trust and act altruistically because we did not test the antecedents. Thus, we encourage future research to examine the antecedents of community trust and altruism.

### **Conclusions**

The value of a virtual community of teacher professionals is created with the rich knowledge of community members. Engaging in the knowledge sharing process can enhance teachers' professional development and teaching quality. Teachers' knowledge sharing intention and behaviors can be promoted in many ways. By introducing the social exchange theory indicating that social exchange relationships support the knowledge sharing process, we found that teachers who report higher community trust have higher willingness to share knowledge, which in turn increases the likelihood of knowledge sharing behavior. We also found that altruism augments the role of community trust in knowledge sharing intention. Together, these results enrich our understanding of the mechanisms by which community trust and altruism can shape the knowledge sharing processes of teachers in a virtual professional community.

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