

Critical Human Factor Evaluation of Knowledge Sharing Intention in Taiwanese Enterprises

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Abstract

Knowledge management (KM) is important in the Taiwan business world. Only 0.1% of SMEs, however, have been guided by the Small and Medium Enterprise Administration (SMEA) to introduce knowledge management from 1993 through 2008. The population of KM-implementing SMEs is low. The climate of knowledge sharing has been recognized as the critical factor to successful KM. According to the research results obtained in this study, relation-based motivation is positively related to one's intention to share knowledge. Individual workers can have increased relation-based motivation to become leaders of SMEs building the culture of interpersonal trust and offering group-based reward mechanisms in an organization. This research can help business managers to identify the motivational elements that can encourage investment and propose pragmatic suggestions for introducing initiatives to reinvigorate the number of SMEs implementing KM in Taiwan. © 2012 Wiley Periodicals, Inc.

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1. INTRODUCTION

Knowledge sharing will not occur if an individual employee does not want to share it. Szulanski (1996, 2000), however, did not agree with the importance of motivation in the sharing of best practices. The practice of knowledge management (KM) in a small and medium enterprise (SME) is not the scaled down practice that is

found in larger organizations because the activity of socialization is dominant in the knowledge-creating cycle in SMEs (i.e., socialization, externalization, combination, and internalization) (Desouza & Awazu, 2006) and because of the close proximity of workers in SMEs. They prefer to share knowledge through personal interaction in formal and informal ways. Therefore, KM is people centered within an SME. Siemsen et al. (2008, p. 432) defines an individual employee's motivation to share as the "inner drive to share knowledge with a coworker." In addition, employee motivation is vague and serves as a major bottleneck to knowledge sharing (Siemsen et al., 2008). It is difficult to identify and measure. The motivational factors for sharing knowledge include the proper reward mechanism in an organization (Alavi & Leidner, 2001; Burgess, 2005; Siemsen et al., 2007; Yu et al., 2007) and interpersonal trust within the organization (Butler, 1999; Lee et al., 2006; Politis, 2003; Staples & Webster, 2008).

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There are two levels in the reward mechanism, namely, the individual and the group. Nucor Corporation, the world's most innovative and fastest-growing steel company for the past three decades, encourages individuals to share knowledge through a group-based incentive program (Gupta & Govindarajan, 2000). Individuals in the group are motivated to share knowledge with other peer units to increase the performance of their bonus group. Bartol and Srivastava (2002) also said that rewards based on collective performance are effective in creating a cooperative climate and organizational commitment among employees. They also proposed that group-based rewards and company-wide incentives, such as profit sharing or employee stock ownership, are suitable in encouraging knowledge sharing within work groups and across teams through formal interactions. According to the proposed concept, group-based rewards should also be effective in influencing the intention of knowledge sharing within an organization. Thus, group-based rewards are looked upon as the major factor influencing the intention of knowledge sharing in Taiwanese SMEs in this study.

Many scholars have asserted that trust increases the volume of information exchange (Anitesh et al., 1997) and strengthens the process of cooperation (Politis, 2003). The factor of trust is a key enabler for knowledge sharing through informal interactions among employees (Bartol & Srivastava, 2002). A high level of interpersonal trust among individuals encourages open discussion, understanding of work-related problems, and effective communication within an organization (Politis, 2003). Experts are less willing to codify or share their expertise with their coworkers when they think their expertise is a source of personal advantage (Bowman, 2002), even when the culture and rewards system of the organization are designed to motivate them to share. Complete trust is not without side effects, however. Trust could distract the knowledge recipient from the true content of knowledge, which decreases the effectiveness of intrafirm knowledge sharing; distraction could also occur if the nature of knowledge transferred has high causal ambiguity (Szulanski et al., 2004). The major reason for this is that interpersonal trust inhibits the recipient from validating the quality of the transferred knowledge.

In this study, according to the definition of Szulanski et al. (2004), relation-based motivation is measured based on support for knowledge sharing by interpersonal trust within the organization, group-

based reward mechanisms for inducing knowledge sharing, and knowledge networks.

1.1. Structural Opportunity to Share Knowledge

The structural dimension of social capital refers to the density of the network and the number of structural holes within it (Burt, 1997; Walker et al., 1997). Siemsen et al. (2008, p. 433) defines an employee's opportunity to share as "the combination of direct and, at least in the short run, uncontrollable factors surrounding the employee and the task environment that inhibit or enable her sharing of knowledge with her coworker." Organizations can offer work conditions or environments that stimulate knowledge sharing. Borgatti and Cross (2003) also pointed out that the physical networks within an organization can lead to information exchange. According to Roth et al. (1994, p. 30), structured knowledge sharing occurs when employees are provided the opportunity to work closely together on teams or in participative exercises. This means that the physical spaces or virtual communities of practice can provide opportunities that encourage individuals to share their ideas, experiences, and knowledge with others. It has been shown that the virtual networks within an organization are also part of structural opportunities for knowledge sharing.

Several studies have identified "lack of time" as one of the reasons that people are reluctant to share their hard-earned knowledge (Chan et al., 2006; Gupta, 2008; Szulanski, 1996). Siemsen et al. (2008) also used time availability as the proxy for an employee's opportunity to share knowledge because a worker requires enough available time at work to perform knowledge sharing with his/her coworkers. According to Widén-Wulff and Suomi (2007), the basic resources that can help strengthen the knowledge-sharing climate in an organization include workforce (human capital), time availability (organizational slack), and information and communications systems technology (ICT) infrastructure. Time availability of the individual worker is also part of structural opportunities for knowledge sharing.

Nowadays, more sophisticated ICT applications are available for building ties among individuals located in different places. Those technologies include the intranet, shared databases, or groupware software to support communication activities among organizational employees, including the sharing of experiences or

ideas and the exchanging of documents. Virtual spaces also allow users to create, develop, and store topic-oriented materials (Huysman & Wulf, 2006). These connections include virtual and physical networks. The organization can embed those ICTs in its work process to enable individual employees to increase communication opportunities to help them share their tacit knowledge. According to data from KPMG International 2000, it is reported that 22% of KM projects are led by the IT department (Cabrera & Cabrera, 2002). Bowman (2002) has also proven that the proper technologies can empower individual workers to obtain the information needed to perform their job tasks. Internet usage by corporate employees in Taiwan has reached 70.95%, according to a 2009 report from the Taiwan Network Information Center. This means that the IT-driven work environment is quite well-developed, and workers have access to a combination of different technologies and media tools to share knowledge in Taiwan's existing IT environment. ICTs, such as Instant Messaging or telepresence tools, can enhance proximity of employees within an organization, regardless of their physical location and whether the organization offers other communication opportunities to employees for working closely together and exchanging information. Some SMEs that are concerned with employee efficiency and high costs, however, prohibit their employees from using ICTs during working time.

This study adopts Siemsen et al.'s (2008) definition of structural opportunity, which covers the main idea of the construct, as the degree of virtual networks, physical networks, and time availability of individual worker in organization regarding knowledge sharing.

1.2. Cognitive Ability to Share Knowledge

The cognitive ability dimension refers to the research issues on what type of knowledge is shared (Huysman & Wulf, 2006). It is widely recognized that innovation and competitive advantage usually come from a combination of diverse knowledge and experience. The goal of KM is to maximize a company's ability to generate solutions and efficiencies that build a firm's competitive advantage. Knowledge sharing creates a collective pool of organizational knowledge (intellectual capital) through the contributions of individual employees. Therefore, individuals should possess the abilities they need both to perform their work tasks and to share these with their peers. Some studies have found that

the employee's ability to share is the major factor influencing the sharing of best practice knowledge in an organization (Cho et al., 2007; O'Dell & Grayson, 1998; Politis, 2003; Rothschild, 1999). A previous study has found that people have a lower intention to participate if they feel their knowledge is not valuable (Wasko & Faraj, 2000). In addition, the lack of some SME workers in Hong Kong of experience and job qualifications prevents them from identifying knowledge and sharing it with others in the group (Chan et al., 2006).

There are at least two people involved in the knowledge-sharing process, the sender who attempts to share knowledge and the recipient who absorbs the knowledge (Siemsen et al., 2008). Reid (2003) has listed several characteristics of knowledge senders and recipients.

Knowledge senders:

- are open and available to share knowledge and expertise with peers within and across the business;
- learn to identify successful practices that have broad applications across the organization so others can apply the same practices; and
- record best practices and make them available so that colleagues can access this knowledge and learn from one another.

Knowledge recipients:

- proactively use knowledge-sharing resources and tools to locate needed knowledge;
- learn to adopt and adapt the knowledge and expertise of others; and
- Participate in knowledge-sharing best practices conferences relevant to their business.

Regarding knowledge senders, Siemsen et al. (2008) have identified the employee's ability to share as "the extent of her skills and proficiencies required to share knowledge with her coworker. . ." (p. 432). There are two determinants of an individual employee's ability: expertise and tenure (Cho et al., 2007). Expertise is developed from an individual's education, training in the organization, learning from other peers, and work experience. The level of practice is positively linked to the sender's length of tenure in his or her field. Regarding knowledge recipients, the recipient's lack of absorptive capacity serves as the major barrier to internal knowledge sharing (Szulanski, 1996, 2000). It is especially important to prevent the transfer of low quality knowledge from senders, because the recipient

cannot validate the quality of the transferred knowledge by their ability.

People can be both knowledge senders and recipients; however, it is common for an individual to be predominantly one or the other. The organization should improve the abilities of its employees by investing in training that develops their abilities to identify the knowledge that is most helpful for the organization, share it with their peers, and absorb such knowledge effectively. Training, in itself, is also a typical formal sharing mechanism (Bartol & Srivastava, 2002). Formal interaction mechanisms, such as training courses or seminars for knowledge sharing, are also typically chosen (Cho et al., 2007). In other words, the organization offers training courses not only to increase the individual abilities of employees, but also to provide an opportunity for knowledge sharing.

The essential element of social exchange is the language or convention that serves as the medium for information exchange among individuals. As people use shared language and convention, they can enhance their ability to approach other people and share their information (Boland & Tenkasi, 1995; Nahapiet & Ghoshal, 1998). In the opposite case, language differences restrict people's access to information. Nahapiet and Ghoshal (1998) have proven that shared language and conventions can enhance the combination capacity for sharing knowledge. The shared codes can be built through the support of practice communities (Lesser & Storck, 2001). All the members of a community can submit their knowledge documents, such as presentation files or case studies, to a database to share them with their coworkers, thereby building on the shared conventions. Community-specific communication conventions are valuable assets within organizations. Grant (1996) agrees with the notion that the transfer of tacit knowledge among people is slow, costly, and uncertain if it cannot be codified and acquired by practice. According to the literature review mentioned earlier in this article, shared languages and conventions are factors that influence the ability of employees to share knowledge with their coworkers. Given that the shared language in Taiwan is Chinese, it is not necessary to consider shared language to be a barrier in Taiwan. The usage of shared conventions then serves as one of the measurements to study the factor of cognitive ability in influencing the intention of knowledge sharing in Taiwanese SMEs in this research.

In this study, the cognitive ability that covers the main idea of the construct is defined as the degree of

investment in the training of knowledge senders and knowledge recipients and the shared organizational conventions for knowledge sharing.

2. METHOD OF RESEARCH: SURVEY BY QUESTIONNAIRE

2.1. Operationalization of the Variables

The content of past literature was analyzed resulting in a pool of seven items. The operationalization of the dependent and independent variables is shown in Table 1. Each item is presented on a 7-point Likert scale.

2.2. Pilot Test

In preparation for large-scale data collection, the questionnaire was tested by six executives directly responsible for iPhone Operating System (IOS) to handle routine work with an important Taiwan firm (Firm A) during the winter of 2009. These executives come from companies that are upstream trading partners with firm A. The resulting questionnaire was tested by these executives, and the Management Information Systems (MIS) manager of firm A reviewed it for final refining.

2.3. Model Simplification

Three criteria have been adopted to filter our variables. First, we removed the factors for which data are hard to acquire. Financial investment in IOS is thus dropped as the interviewed firms expressed difficulty in isolating this information from the overall IT budget. Among the tangible resources, we chose physical assets as a testing variable because our pilot firms all agreed it is the most important tangible resource for IOS development and it can represent general conditions of tangible resources.

Second, some variables that do not apply to the Taiwan industry are eliminated. Therefore, reciprocal investment is dropped because component suppliers in the Taiwan industry have no chance to do this: Almost all of them are small and medium enterprises (SMEs). We also exclude IOS integration from the specific intangibles because system integration has been well recognized and justified as an important factor for IOS implementation in those companies.

Interfirm knowledge sharing is removed from the relational specific intangibles due to very little practice having done in our sampling pool, although the pilot firms agree that this is a significant driver of IOS usage.

TABLE 1. Operational Definitions of Items in the Questionnaire

Construct	Independent Variable	Operational Definition	Literature
Knowledge sharing	Intention	Individual worker intends to deliver, receive, and exchange knowledge in group work within the organization. Which questions from the questionnaire did you aggregate to measure this variable? You need to provide this information for all variables.	Szulanski (1996)
Relation-based motivation	Interpersonal trust at work	An employee's faith and confidence in his or her peers	Politis (2003)
	Group-based reward mechanism	The reward is based on collective performances. Examples of this reward include company-wide incentives, profit sharing, and group-based incentives.	Gupta & Govindarajan (2000); Bartol & Srivastava (2002)
Structural opportunity	Proximity of employees	Physical networks: Face-to-face meeting and training Virtual networks: Use of ICT tools to share information	Siemsen et al. (2008); Bowman (2002)
	Time availability	Reasonable job loading: Leaving the office on time	Siemsen et al. (2008)
Cognitive ability	Investment in training	Training for personal ability improvement	O'Dell & Grayson (1998); Cho et al. (2007)
	Building shared acronyms	Group-specific communication codes, such as standard operation protocol, acronyms, and shared narratives; document storage database	Nahapiet & Ghoshal (1998); Lesser & Storck, 2001
Construct	Dependent Variable	Operational Definition	Literature
Intention of knowledge sharing			

Policy is dropped from the industry-specific intangibles as well, because the data may lack variety in view of the fact that our sampling is done in the same region that applies the same policy. The pilot firms also indicated that all of the suppliers had training courses on the use of IOS and could use IOS to handle routine work in a short period of time. This reveals that the human IT skill differentials are also small in these suppliers. For this reason, we exclude the people-based skills from our model.

The third reason is related to questionnaire scope. Learning capabilities include various issues about the KM cycle. We have decided to test this in the future. Finally, path dependency is chosen as a testing variable considering its novelty and conceptual simplicity.

The constructs of relation-based motivation, structural opportunity, and cognitive ability are the dependent variables. The operational definitions of variables

and related literature are shown in Table 1. Hypotheses are presented here so that the reader can compare the variables in the hypotheses to operationalizations (Chen et al., 2011a, 2011b).

Hypothesis 1: Relation-based motivation results in the intention to share knowledge.

Hypothesis 1.1: Greater interpersonal trust existing in an organization results in heightened relation-based motivation.

Hypothesis 1.2: More group-based reward mechanisms in an organization results in heightened relation-based motivation.

Hypothesis 2: The presence of more structural opportunities in an organization results in a greater intention to share knowledge.

Hypothesis 2.1: The presence of more virtual networks in an organization results in more structural opportunities in the group.

Hypothesis 2.2: The presence of more physical networks in an organization results in more structural opportunities in the group.

Hypothesis 2.3: The greater the time availability of individual workers in an organization results in more structural opportunities in the group.

Hypothesis 3: Greater cognitive ability results in a greater intention to share knowledge.

Hypothesis 3.1: More investments in training knowledge senders and knowledge recipients results in greater cognitive ability among employees.

Hypothesis 3.2: More shared acronyms in an organization results in greater cognitive ability among employees.

2.4. Validity and Reliability

The instrument was tested for several validity and reliability properties. Validity is the degree to which an instrument measures the construct under investigation. Reliability measures the stability of the scale based on an assessment of the internal consistency of the items measuring the construct. Content analysis (i.e., content validity) and pilot testing should be conducted before the measurement assessment to ensure that the measurement is supported by academic research and business practices. Construct validity is assessed using convergent and discriminant validity. Convergent validity evaluates whether all the items measuring a construct are clustered together to form a single construct. Discriminant validity measures the degree to which a concept differs from other concepts and is indicated by the items not highly correlated with other measures from which it should theoretically differ. A two-step process is recommended for testing construct validity. Initially, the convergent validity of each construct needs to be evaluated. This evaluation removes outliers (if any) for the constructs. Subsequently, discriminant validity needs to be evaluated by subjecting all the items measuring the various constructs to determine whether the items are loaded on the appropriate constructs.

2.5. Convergent Validity

A multitrait multimethod is used for convergent and discriminant validity of the model. This method uses the correlations matrix of construct indicators ob-

served in the sample. We look at the patterns of intercorrelations among the items. Correlations between theoretically similar items should be high, whereas correlations between theoretically dissimilar items should be low. To ascertain convergent validity, the items' within-dimension intercorrelations should be relatively high. On the heterotrait/monodimension triangles of the correlation matrix, the intercorrelations for all within-dimension item pairings are comparatively high. Overall, the correlation coefficients in the validity diagonal are significantly higher than zero ($p < 0.0001$). These correlations are significantly higher than zero and indicate convergent validity allowing investigators to proceed further with the discriminant validity of the model.

3. QUESTIONNAIRE RESULT ANALYSIS

The questionnaire was sent to respondents who were working in Taiwanese SMEs through the 104 Job Bank, Taiwan's largest online job site (http://www.104.com.tw/service_eng.htm). This site has a rich database, which includes data on companies and job seekers. It also offers a survey service for marketing and related research. The survey center is a member of the European Society for Opinion and Marketing Research. The target respondents should have three years of work experience in their current position, and the qualified respondents should have word-related knowledge for sharing. In addition, a respondent SME should have fewer than 50 employees.

3.1. Sample Demographics

The total number of useful questionnaires was 149. All respondents had more than three years of seniority in their current positions, and thus, they possess rich knowledge that they can share with coworkers. Women account for 57% of the respondents; 77.1% of the respondents have bachelor's or higher degrees. Half of the respondents' companies are in the service industry (e.g., wholesale and retail, hotel and restaurant, finance and insurance services, professional scientific and technical services, educational services, medical and health care services, real estate and leasing, as well as cultural, sporting, and leisure services). The distribution of the

service industry is comparable to that of the data from the White Paper on Small and Medium Enterprises in Taiwan (2009). The sample demographics are shown in Table 2.

TABLE 2. Sample Demographics

Item	Number of Respondents	Percentage in the survey (%)
Age (years)		
21–30	40	26.8
31–40	55	36.9
41–50	40	26.8
51–60	14	9.4
Gender		
Female	85	57.0
Male	64	43.0
Seniority (years)		
3–5	58	38.9
6–10	49	32.9
11–20	27	18.1
> 20	15	10.1
Company Size (No. of employees)		
< 3	16	10.7
3–5	24	16.1
6–10	25	16.8
11–20	30	20.1
21–30	23	15.4
31–40	17	11.4
41–50	14	9.4
Industry of company		
Wholesaler & Retailer	27	18.1
Hotel & Restaurant	6	4.0
Agriculture, Forestry, Fisheries, & Animal Husbandry	4	2.7
Manufacturer	36	24.2
Finance & Insurance Service	3	2.0
Professional Scientific and Technical Service	25	16.8
Educational Service	19	12.8
Medical & Health Care Service	4	2.7
Transportation & Warehousing	3	2.0
Real Estate & Leasing	5	3.4

(continued)

TABLE 2. Continued

Item	Number of Respondents	Percentage in the survey (%)
Cultural, Sporting, & Leisure Service	2	1.3
Others	15	10.1
Region of Taiwan		
North	76	51.0
Middle	29	19.5
South	44	29.5
Level of Education		
Less than Junior High School	2	1.3
Senior High School	32	21.5
Junior College	38	25.5
University	68	45.6
Institute	9	6.0
Position Category		
Administration	42	28.2
Management	26	17.4
Sales Representative	17	11.4
Professional Technician	23	15.4
Operator	8	5.4
Service Provider	13	8.7
R&D	6	4.0
Other	14	9.4

3.2. Reliability Analysis

In Table 3, it can be seen that most of the Cronbach g values fall between 0.688 and 0.937, in accordance with the acceptable value of between 0.6 and 1 proposed by DeVellis (1998). The Cronbach g value for the “Group-based reward mechanism” (0.394) is not acceptable, however. It may be that Q3.1 and 3.2 are not as suitable for measuring the degree of group-based reward mechanism in an organization. Those two questions tend to dichotomize questions (yes or no). The results of Q3.2 still offer helpful information. More than 53.7% of the respondents agreed that the availability of a group-based reward mechanism would encourage them to share knowledge with other workmates in their organizations (see details in Tables 4–5).

3.3. Correlation Analysis

Pearson’s correlation coefficient (r) was used in this study to measure the strength of the association

TABLE 3. Reliabilities of Variables

Constructs	Variables	Cronbach's α Values	Number of Item	Code of Question
Intention of knowledge sharing	Intention of knowledge sharing	0.882	5	Q1.1–Q1.5
Relation-based motivation	Interpersonal trust	0.937	7	Q2.1–Q2.7
	Group-based reward mechanism	0.394	2	Q3.1 and Q3.2
Structural opportunity	Physical network	0.849	3	Q4.1–Q4.3
	Virtual network	0.868	3	Q5.1–Q5.3
	Time availability	0.688	3	Q6.1–Q6.3
Cognitive ability	Training	0.874	3	Q7.1–Q7.3
	Shared acronyms	0.809	2	Q8.1 and Q8.2

TABLE 4. Reliabilities of the Questions

Code of question	Average Scale Medium Value if Item Deleted	Scaled Variance Value if Item Deleted	Corrected Item–Total Correlation	Multiple Correlation Squared
Q1.1	20.01	14.662	0.704	0.536
Q1.2	20.14	15.000	0.649	0.481
Q1.3	19.54	15.534	0.756	0.653
Q1.4	19.56	15.073	0.783	0.700
Q1.5	19.64	15.055	0.713	0.560
Q2.1	28.70	37.277	0.785	0.717
Q2.2	28.68	36.666	0.885	0.859
Q2.3	28.80	35.905	0.861	0.811
Q2.4	28.42	38.664	0.816	0.726
Q2.5	28.56	36.842	0.824	0.729
Q2.6	28.81	38.509	0.763	0.601
Q2.7	28.29	39.855	0.646	0.508
Q3.1	4.78	1.944	0.247	0.061
Q3.2	3.71	2.436	0.247	0.061
Q4.1	8.73	6.009	0.776	0.688
Q4.2	8.62	6.169	0.805	0.704
Q4.3	8.24	7.725	0.587	0.348
Q5.1	8.68	7.244	0.764	0.587
Q5.2	8.79	7.318	0.760	0.582
Q5.3	8.44	7.707	0.719	0.518
Q6.1	9.79	3.950	0.466	0.296
Q6.2	9.24	4.374	0.672	0.460
Q6.3	8.77	5.938	0.427	0.284
Q7.1	8.62	7.143	0.802	0.719
Q7.2	8.72	6.768	0.828	0.738
Q7.3	8.19	7.951	0.651	0.427
Q8.1	4.42	1.584	0.679	0.461
Q8.2	4.43	1.639	0.679	0.461

between constructs and the variables of interpersonal trust, group-based reward mechanism, training, shared acronyms, physical network, virtual network, and time availability. Those Pearson's correlation coefficients fall

within the range of 0.661–0.969 (Table 6). All correlations are positive correlations, indicating that these variables have positive correlations with these constructs; correlation coefficients have values larger than

TABLE 5. Results for Question 3.2

	Number	Percentage (%)
1: No, I strongly disagree.	5	3.4
2: No, I disagree quite a lot.	3	2.0
3: No, I disagree just a little.	9	6.0
4: Neutral!	52	34.9
5: Yes, I agree just a little.	31	20.8
6: Yes, I agree quite a lot.	32	21.5
7: Yes, I strongly agree.	17	11.4
Total	149	100.0

Question 3.2: I would share knowledge with my colleagues if my organization offered group-based incentives.

0.7, which is the value proposed by Saunder, Lewis, and Thornhill (2007, p. 451). The combined results from the questionnaire for those variables can represent the constructs. All significance levels obtained using the two-tailed significance test are less than 0.01.

3.4. Regression Analysis

Table 7 provides a summary of the multiple regression analysis results. Both motivation and opportunity results show a positive correlation with the intention of knowledge sharing, accompanied by a significant confidence level. Meanwhile, the construct of ability is negatively correlated with the intention of knowledge sharing. Its negative influence on the intention of knowledge sharing, however, is relatively small ($t = -0.736$ and $\text{sig.} = 0.463$). The overall explanatory strength of the motivation-opportunity-ability (MOA) model to influence the intention of employees to share knowledge in Taiwanese SMEs is estimated to be approximately 36.8%.

TABLE 6. Pearson's Correlation Coefficients between Constructs and Variables

Construct	Variables			
Relation-based motivation	Interpersonal trust		Group-based reward mechanism	
	0.969 (**)		0.661 (**)	
Cognitive ability	Training		Shared acronyms	
	0.923 (**)		0.761 (**)	
Structural opportunity	Physical network	Virtual network	Time availability	
	0.820 (**)	0.845 (**)	0.676 (**)	

** $p < 0.01$ (two tailed).

TABLE 7. Summary of Multiple Regression Analysis: Linear Regression

Construct	Beta	<i>t</i> Value	Significance	R^2
Motivation	0.395	4.165	0.000	0.368
Opportunity	0.335	3.124	0.002	
Ability	-0.075	-0.736	0.463	

According to the regression analysis, the motivation and opportunity factors are both supported with a significant t value at the 99.9% and 98% confidence levels, respectively. The value of significance for the ability construct is 0.463, which means that the ability construct does not have an encouraging result and hence cannot support this conjecture. The negative effect from the factors of ability indicates that ability would impair the intention of employees to share their knowledge in Taiwanese SMEs. This construct, however, has a negative t value and low significance, indicating that this factor is not critical in the MOA framework.

3.5. Hypotheses Testing

The hypotheses tested in the research are shown in Table 8. The questionnaire results do not support hypothesis 3. The others are supported by testing.

4. CONCLUSIONS

The sender of knowledge can obtain benefits, such as a higher performance evaluation and praise from the organization, for sharing knowledge with workmates and assisting the company in publicly owning and organizing knowledge. Those benefits can encourage

TABLE 8. Summary of Hypotheses Testing

Hypothesis	Description	Result
H1	The greater the relation-based motivation, the greater the intention of knowledge sharing will be.	Supported
H1.1	The greater the level of interpersonal trust in the organization, the more relation-based motivation there will be.	Supported
H1.2	The greater the group-based reward mechanism in the organization, the greater relation-based motivation there will be.	Supported
H2	The more structural opportunities there are, the greater the intention of knowledge sharing will be.	Supported
H2.1	The more virtual networks in organization there are, the more structural opportunity there will be.	Supported
H2.2	The more physical networks in the organization there are, the more structural opportunities there will be.	Supported
H2.3	The more time available to the individual worker in the organization, the more structural opportunities there will be.	Supported
H3	The greater the level of cognitive ability, the greater the intention of knowledge sharing there will be.	Not supported
H3.1	The more investment in training for knowledge senders and knowledge recipients, the greater the level of cognitive ability will be.	Supported
H3.2	The more shared acronyms used in the organization, the greater the level of cognitive ability will be.	Supported

other workers to act similarly, thereby creating a positive cycle. In time, interpersonal trust could be imbedded in a company's culture. Individual workers can encourage and help each other when they face difficulties in a working environment characterized by interpersonal trust. This will also result in renewed confidence in the capabilities of fellow workers and motivation to work effectively even in the absence of supervisors.

Company-wide reward mechanisms, such as profit sharing or employee stock ownership, are commonly practiced among large enterprises. More and more SMEs offer stock ownership to senior employees. Restaurant employees can even become franchise owners in the future. This reward mechanism also can be used in other industries, such as in the retail and wholesale sectors.

Structural opportunity is positively related to one's intention to share knowledge, according to the results of this research. The presence of virtual and physical networks and guaranteed time availability should motivate employees to share knowledge within organizations. The Internet has become a common way to find information and knowledge that are useful for work. Prohibiting use of the Internet or ICT tools would thus be out of line. The Internet can help workers obtain

information and more external opportunities through web searching. Furthermore, the use of ICTs can help workers communicate with each other without the limitations of space and time. Moreover, the cost of using ICT tools is lower than that of traditional tools, such as telephone or facsimile. Therefore, the use of ICTs has two benefits to a company: full communication among individual workers and savings on operational costs.

Individual workers have no time to interact with workmates, let alone share knowledge, if they always work overtime. Thus, time availability is a critical limitation factor to workers. Most workers need to attend to their personal lives and balance these with their daily tasks at work. They also need time to integrate their knowledge and upgrade skills and capacities at work. The leaders of SMEs need to monitor the sufficiency of manpower in an organization. Monitoring can help a leader understand the human resources employed by the organization, and then delegate those resources to create suitable projects to improve the quality of the company's product or service. For example, sufficient manpower can support the introduction of software meant for enterprise resources planning (ERP), which increases the efficiency of customer service. The

team members of a project serve as in-house trainers who will promote the ERP system around the company. All of the actions just mentioned require that the participants have time available to join ERP despite their daily tasks. The investment in sufficient manpower can thus support interaction among employees and the delegation of resources to develop or upgrade the core competence of a company.

Individual workers cannot share knowledge if they have no communication or other work-related abilities; this fact is known to everyone, although it is not supported in this research. Leaders of SMEs should train employees to help them develop their own abilities at work. For example, designers need to upgrade their skills to fit fashion trends and learn how to use more up-to-date ICT tools. For example, some Taiwanese beauty salons offer training opportunities to senior hair designers to help them learn updated technology from Japan. Those senior designers then become the internal trainers for other designers. In addition, leaders of SMEs also need to allow senior employees to work for a longer time at specific positions to help them accumulate experience. The retention rate of labor relates to many factors, however, including interpersonal trust culture, reward mechanisms, organizational investment, managerial attitudes, and so on. This issue is not discussed in this study.

Communication skills are critical to the process of knowledge sharing. Some people possess rich knowledge but have poor communication skills, making it difficult for them to share their knowledge. Some companies adopt strategies to increase the efficiency of communication within the group.

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