Research on Impacting Factors of University Lecturers' Knowledge Sharing in Vietnam

Do Van Sang[*]
National Economics University, Hanoi, Vietnam.
Nguyen Thanh Do
National Economics University, Hanoi, Vietnam.
Nguyen Thi Lien Huong
National Economics University, Hanoi, Vietnam.
Nguyen Anh Tu
National Economics University, Hanoi, Vietnam.

Abstract

This study explores the impact of knowledge technology, learning organization culture, rewards, recruitment and selection practices on knowledge sharing (knowledge donating and knowledge collecting) amongst university lecturers in Vietnam. The paper utilized structural equation modeling and cross-sectional design to test hypotheses in the proposed research model using data collected from 447 lecturers from 13 Vietnamese universities. The result of the data analysis shows that there is a positive relationship between recruitment and selection practices and learning organization culture with knowledge donating and knowledge collecting. But there isn't a positive relationship between knowledge, technology, and rewards. The study suggests policies and recommendations for educational administrators at universities to promote and enhance knowledge sharing among lecturers.

Keywords: Knowledge sharing, Knowledge technology, Learning organization culture, Rewards, Recruitment, and Selection practice.
JEL Classifications: B23, D8, D83

---

[*] **Corresponding author**: E-mail: sangdv@neu.edu.vn

1. Introduction

Knowledge sharing, or the process of mutually exchanging knowledge and together creating new knowledge (De Vries et al., 2006), is recognized as a source of competitive advantage (Grant, R. M, 1996; Riege, 2005) and innovativeness (Van Wijk et al., 2008). For knowledge sharing and knowledge combination to be effective, donating and collecting knowledge are central (De Vries et al., 2006). Thus, the study distinguishes between knowledge donating (communicating knowledge to others) and knowledge collecting (actively consulting others for their intellectual capital) (De Vries et al., 2006). The successful exchange of knowledge between the donor and the collector is the fundamental means through which employees may contribute to knowledge dispersion and, in turn, productivity and performance at the team and organizational levels of analysis. In particular, the research reviewed by Wang and Noe (2010, p. 115) reveals positive associations between knowledge sharing and knowledge combination and important organizational outcomes, such as reduced production costs, faster completion of new product development projects, team performance, strong innovation capabilities, and firm performance.

Knowledge sharing comprises a set of shared understandings related to providing employees access to relevant information and building and using knowledge networks within organizations (Hogel et al., 2003). A firm can successfully promote a knowledge-sharing culture by directly incorporating knowledge into its business strategy and changing employee attitudes and behaviors to promote generous and consistent knowledge sharing (Connelly & Kelloway, 2003; Lin & Lee, 2004). Moreover, various studies have focused on the relationship between knowledge sharing enablers and processes (Van Den Hooff & de Leeuw Van Weenen. (2004); Bock et al., 2005), while others have focused on the relationship between knowledge sharing enablers and innovation performance (Calantone et al., 2002). However, researchers and practitioners have not tried an integrative model that explores the influence of factors on the two central processes of knowledge sharing (knowledge donating and knowledge collecting) from a holistic perspective, and little empirical research has examined the relationships between the factors that support knowledge sharing among lecturers in universities.

This study develops a research model linking different knowledge-sharing enablers to fill this gap. The study examines the influence of the following factors: Knowledge Technology (KT), Learning organization culture (LOC), Rewards (RW), Recruitment and selection practice (RS) on knowledge sharing (knowledge donating (KD) and knowledge collecting (KC)). Based on a survey of 447 lecturers from 13 universities in Vietnam, this paper applies structural equation modeling (SEM) to investigate the hypotheses. This study also contributes to the literature by clarifying the essential factors for effective knowledge sharing. The findings of this study provide a theoretical basis for analyzing relationships among knowledge-sharing enablers. From a managerial perspective, this study helps management improve their understanding and practice of knowledge sharing. Specifically, this study identifies several factors essential to successful knowledge sharing and discusses the implications of these factors for developing organizational strategies that encourage and foster knowledge sharing.

2. Literature Review and Hypotheses

2.1. Knowledge and knowledge sharing

Knowledge may exist in two different forms, namely, explicit and tacit knowledge (Nonaka, 1994; Shariq et al., 2019). Explicit knowledge is objective knowledge that can be formulated, codified, and transferred through formal language (Che et al., 2019; Nonaka, 1994; Shariq et al., 2019). In contrast, tacit knowledge is subjective knowledge that is difficult to formulate, codify, and transfer (Che et al., 2019; Han et al., 2019; Nonaka, 1994). Although it is challenging to transfer tacit knowledge, supervisors can share such knowledge through interacting with their subordinates (Che et al., 2019), socializing with their subordinates (Borges et al., 2019), or training their subordinates (Abualoush et al., 2018). Moreover, knowledge sharing can occur via networking, communicating face-to-face, corresponding with others, or documenting, organizing, and capturing knowledge for others (Abualoush et al., 2018). Likewise, knowledge sharing could be done directly through communicating with others or indirectly by providing a knowledge archive (Bock et al., 2005).

As Van Den Hooff & de Leeuw Van Weenen (2004) emphasized, it is essential to distinguish between knowledge donating on the one hand and knowledge collecting on the other. Knowledge sharing and knowledge combination involve two actions: the sender's transmission and the recipient's absorption or use of the knowledge (Foss et al., 2009). In what follows, the study first argues that there will be a positive relationship between lecturers' knowledge donating and colleagues' knowledge collecting, as lecturers are more likely to collect knowledge from colleagues when they are the recipients of colleagues' knowledge donation. Then, the study argues the relationship between what knowledge was donated and what knowledge was collected between lecturers and their colleagues.

Lecturers' knowledge donation requires that the lecturers actively communicate knowledge to their colleagues. Still, it is likely that the more proactive and willing the knowledge donators are, the more ease the knowledge collectors can experience. Furthermore, lecturers who explicitly communicate their knowledge to their colleagues (knowledge donating) may be more likely to be recognized for their efforts and intellectual capacities. This should, in turn, make the colleagues more inclined to consult these lecturers to learn what they know (knowledge collecting). Furthermore, Van Den Hooff & de Leeuw Van Weenen (2004, p. 22) argued that "having a good picture of one's own information needs   can positively influence collecting knowledge." In this respect, lecturers' knowledge donating may inform the colleagues of their information needs, which, in turn, should influence the colleagues' knowledge collecting. Finally, because both knowledge donating and knowledge collecting represent active processes that are visible to the other party (De Vries et al., 2006), the study should expect a positive relationship between the two based on the norm of reciprocity (Gouldner, 1960) – that is, the active donating by lecturers should make the colleagues more inclined and obligated to actively collect what is donated.

2.2 Knowledge sharing factors

2.2.1. Knowledge Technology (KT)

Knowledge technology, better known as information and communication technology (ICT), is an essential enabler of firms' knowledge-sharing initiatives.

Research indicates that adequate information technology infrastructure is crucial in building and integrating firms' operations, which provides linkages between information and knowledge in firms (Teece, 1998). Alavi & Leidner (2001) argued that knowledge is shared and transferred within an organization through various means, for example, face-to-face interaction, mentorship, job rotation, and staff development. In other words, ICT applications and tools such as intranets and extranets, discussion forum boards, shared workspaces, Wikis, blogs, and groupware are helpful to encourage employees to communicate and share knowledge required to get specific tasks accomplished. Riege (2005) indicated that ICT ensures that large amounts of data and information are accessible to users on time within the organization. The availability of databases and networks facilitates employees ability to exchange and share information without dependence on organizational structure or management support. ICT can also promote knowledge sharing by creating new relationships among members (Levin & Cross, 2004). Some studies found that ICT negatively impacts knowledge sharing (Riege, 2005; Kim & Trimi, 2007). Some factors contributing to this barrier included unrealistic technology expectations, a lack of system training, poor ease of use, and system design. On the other hand, previous studies pointed out some relationships between ICT and knowledge sharing (Lin, 2007; Cyril Eze et al., 2013). Hence, the following hypothesis is proposed:

Hypothesis 1a (H1a): Knowledge technology positively relates to knowledge donating.
Hypothesis 1b (H1b): Knowledge technology positively relates to knowledge collecting.

2.2.2. Rewards

Rewards help motivate individuals to perform desired behavior (Bartol & Locke, 2000). To effectively encourage knowledge-sharing activities in an organization, the reward system must be realistic and open-minded. Srivastava et al. (2006) argued that rewards come in many forms, including monetary (for example, annual increments, bonuses, and profit sharing) and non-monetary ones (recognition, praise, promotion, and job safety assurance). Employees are more likely to complete tasks with high efficiency and are motivated to share knowledge with others if they perceive fairness in reward (Bartol & Locke, 2000). Choi et al. (2008) argued that the reward mechanism is more important than technical assistance in facilitating knowledge sharing. Bartol & Srivastava (2002) suggest that financial rewards can encourage knowledge sharing through personal contributions to databases, formal interactions within and between groups, and knowledge sharing between work units. Wolfe & Loraas (2008) assert that all forms of reward (financial and non-financial) can promote knowledge sharing. Several studies found that knowledge sharing is more likely if a person perceives that sharing rewards exceed costs (Bock et al., 2005). Chaudhry (2005) concluded that rewards are motivational factors for knowledge sharing. Generally, individuals expect recognition and rewards for sharing knowledge, such as their experience and expertise, with the organization.

To test the impact of the rewards factor on the knowledge sharing of lecturers, the proposed research hypothesis is:

Hypothesis 2a (H2a): Rewards positively relate to knowledge donating.
Hypothesis 2b (H2b): Rewards positively relate to knowledge collecting.

2.2.3. Learning organization culture

Organizational culture refers to the organization and its members' values, beliefs, and codes of conduct. According to Kimiz Dalkir (2005), each member's customs, rituals, self-configuration, and the like, which set it apart from other organizations, are collectively known as its culture. Organizational culture can encourage or inhibit knowledge creation and sharing in organizations (Newell et al., 2006; Alavi & Leidner, 2001). Al-Alawi et al. (2007) stated that every organization has a unique culture that reflects its identity in two ways: visible (values, mission, and philosophy) and intangible (norms, employee values, behaviors, and actions). An organization must build a structure and culture and promote knowledge-sharing processes so people can make knowledge available to others. Learning organizations actively acquire and process value-adding knowledge about markets, technologies, customers, and processes. It creates a structure and process in which organizational learning occurs through teamwork, collaboration, and technological systems to generate collective values (Watkins & Marsick, 2019).

Organizational culture plays a vital role in determining the process of a learning organization. Schein (1996) stressed that organizational learning consists of interactions among employees, which is related to the influence of an organizational culture that governs the behavior of employees. As a critical factor in building a learning organization, organizational culture can have an important impact on a company's success by determining the nature of learning and the way learning occurs within the organization (Watkins & Marsick, 1996). Watkins & Marsick (1993) defined a learning organization as an "organization that learns continuously and transforms itself" (p. 118). Watkins & Marsick (1993) also proposed an integrated framework (DLOQ) that guides how organizations could be assessed for their learning culture based on seven distinct dimensions of the learning organization. Indeed, learning organization and organizational culture are mutually complementary concepts because learning depends on beliefs and norms, which are the core of organizational culture. Organizational culture results from learning in which these beliefs and norms are shared.

Like this, a learning organization is a culture and a structure that attempts to facilitate individual and team learning and knowledge sharing, such as capturing, disseminating, and transferring organizational knowledge (Watkins & Marsick, 2019). Oyemomi et al. (2019) also found that organizational culture supports employees' knowledge-sharing activities to enhance organizational performance and innovation because culture enables mutual learning, in which people can share their experiences through social interaction. Employees in a learning organization environment are more likely to perceive the encouragement and support for knowledge sharing; thus, they would form positive attitudes toward knowledge sharing and be willing to engage in sharing knowledge. Therefore, the following hypotheses are proposed:

Hypothesis 3a (H3a): Learning organization culture positively relates to knowledge donating.

Hypothesis 3b (H3b): Learning organization culture positively relates to knowledge collecting.

2.2.4. Recruitment and selection practices

In organizations, recruitment and selection practices are an HRM activity set to get the correct quantity and quality of employees (Chee-Yang Fong et al., 2011). In general, recruitment will try to match candidates' knowledge, skills, and attitudes with the technical requirements of the position (Chatman, 1991). Employers will communicate with candidates about job descriptions and position characteristics to attract qualified

candidates (Chatman, 1991). When the suitability of new employees to the new working environment and relationships is high, individual and team performance stays high, and thus better corporate performance is expected (Goodman & Svyantek, 1999). The faster the adapting speed of new employees, the more convenient the exchange and sharing of knowledge between old and new members of an organization (Chatman, 1991).

The selection of suitable candidates —people with a common perception of knowledge sharing —will be given higher priority (Currie & Kerrin, 2003). Current recruitment and selection methods can attract talented and knowledgeable people to an organization. For example, the recruitment process looks for motivated individuals to contribute to the overall organization's goals. Selection methods (tools and testing methods) are used in the selection process (interviews and background checks). The design of the recruitment process should ensure the validity and reliability of the selection of professional knowledge-sharing staff. Research by Chee-Yang Fong et al. (2011) showed that recruitment and selection are essential activities in HRM. They are also significant in enhancing management knowledge-sharing. This finding is consistent with the previous study by Cabrera & Cabrera in 2005. The scholars found that selecting employees with the correct values and personality traits enhances knowledge sharing. In this study, recruitment and selection practices are predicted to be related to the knowledge sharing of universities' lecturers in Vietnam. Thus, the following hypothesis is proposed:

Hypothesis 4a (H4a): Recruitment and selection practices positively relate to knowledge donating.

Hypothesis 4b (H4b): Recruitment and selection practices positively relate to knowledge collecting.

Following the arguments mentioned earlier, a conceptual model of research engagement is developed in Figure 1.

Figure 1. Conceptual Framework
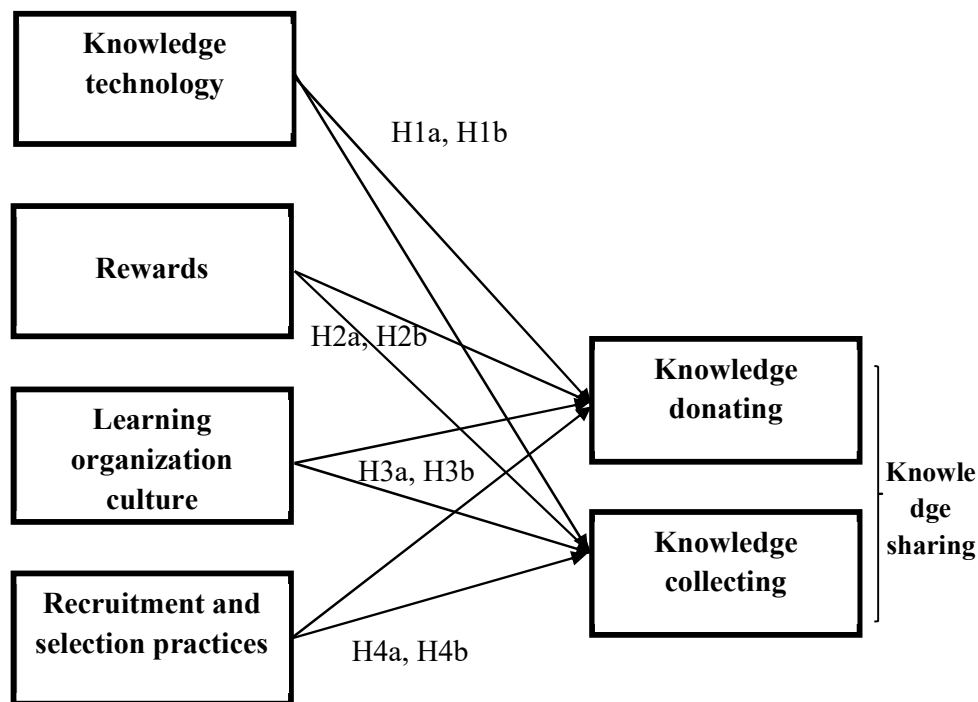
Source: Authors' elaboration

3. Methods

3.1. Sample and procedure

The research samples came from university lecturers in the Hanoi area. From the list of 15 Hanoi universities, open invitations were sent using internal email systems to every university in the list. Thirteen universities agreed to join the survey, and 50 lecturers were selected from each participating university on a random basis. The first lecturer from the staff list was selected, and the next sample was a 5 unit difference (the 6th), then the 11th in the list, and so on. The only exception was at home university where 60 invitations were sent out using the same selection method. In total, the study used a sample size of 600, with the survey subjects being lecturers from 13 universities in Hanoi, Vietnam. Likert's 5-point scale was used in research questionnaires, ranging from 1 (totally disagree) to 5 (totally agree). A total of 510 responses were collected and the biased observations eliminated, making 447 observations valid for further analysis. Of these academic and teaching staff, approximately 59.5% were male; more than half were 40 years old or older; three-fourths obtained doctorate qualifications; and around 84% had been working in the current institution for more than ten years. Moreover, the highest proportion of respondents was from 40 to 49 years old (51.2%), and just 3.6 % of respondents were aged below 30 years, respectively. In terms of degree, 40.9% of the lecturers were at a master's degree level, and 59.1% of lecturers were Ph.D. Regarding academic rank, 85.2% of the lecturers had no academic rank, and 14.8% of lecturers were Associate Professor or Professor. In addition, 49% of respondents were in economic science, 27.1% were in science engineering - technology, 10.3% were in humanities and social sciences, and only 8.1% were in sports science. The respondents' demographic information is shown in Table 1.

Table 1. Demographic Variables Information (N = 447)

Demographic variables	Group category	Frequency	%
Gender	Male	266	59.5
	Female	181	40.5
Age	Below 30 years	16	3.6
	30–39 years	172	38.5
	40–49 years	229	51.2
	Above 50 years	30	6.7
Degree	Master	183	40.9
	PhD	264	59.1
Academic rank	No Academic rank	381	85.2
	Associate Professor/ Professor	66	14.8
Expertise type	Engineering - Technology Science	146	32.7
	Economic Science	219	49
	Humanities and Social Sciences	46	10.3
	Sports Science	36	8.1

Source: Authors' study

3.2. Data analysis

The study performed a regression analysis to assess the contribution of different factors (Knowledge technology, Learning organization culture, Rewards, Recruitment and selection practice) to knowledge donating and knowledge collecting. Structural equation modeling (SEM) was implemented to test the hypothesized relationships, and the analysis process includes three main steps. Firstly, Cronbach's alpha and explorative factor analysis (EFA) were used to assess the reliability of variables. Secondly, confirmatory factor analysis (CFA) was employed to test the empirical validity of the research model and each measure. Then Structural equation modeling (SEM) was applied to estimate path coefficients for each proposed relationship in the conceptual framework. In addition, the statistical analysis was carried out using SPSS 22.0 and AMOS 22.0 software.

3.3. Measures

Most of the measures for variables used in this study were drawn from the literature and adapted for the Vietnamese context. To ensure the face validity of the above measurement scales, legal translation and back translation were conducted.

Regarding the factors of Knowledge technology (seven items), Rewards (seven items), and Knowledge donating (six items), the study employed the scales of Cyril Eze et al. (2013). For the factor of Learning organization culture (seven items), the study used a scale by Watkins & Marsick (1993, 1996). For the factor Recruitment and selection practice (five items), the scale developed by Chee-Yang Fong et al. (2011). Finally, the study employed Bart van den Hooff & Jan A. de Ridder (2004) scale to measure Knowledge collecting (five items).

4. Results

4.1. Exploratory Factor Analysis (EFA)

After assessing the reliability of scales by Cronbach's alpha using SPSS software, 37 items were used in the exploratory factor analysis (EFA). The first results of testing the reliability of scales by exploratory factor analysis show that KMO = 0.944, Sig. (Bartlett's Test) = 0.000 < 0.005, Initial Eigenvalues = 64.196 > 50%. However, factor loadings RW1, RW4, RW5, RS3, KC5, KD6, and LOC7 all have factor loading coefficients less than 0.5. Thus, the authors remove these items from the scales before starting the confirmatory factor analysis (Nunnally, 1978). The results of the exploratory factor analysis and the reliability of scales by Cronbach's alpha are presented in Table 2.

Table 2: The Results of Exploratory Factor Analysis (EFA) and Cronbach's Alpha

Items	1	2	3	4	5	6	Cronbach's Alpha
KT1	.655						.875
KT2	.679						.883
KT3	.748						.867
KT4	.844						.864
KT5	.752						.869
KT6	.658						.879
KT7	.734						.869
RW2				.592			.870
RW3				.687			.859

Items	Factor						Cronbach's Alpha
	1	**2**	**3**	**4**	**5**	**6**	
RW6				.888			.843
RW7				.947			.831
LOC1			.578				.828
LOC2			.678				.850
LOC3			.746				.829
LOC4			.915				.815
LOC5			.564				.828
LOC6			.591				.829
RS1					.872		.830
RS2					.895		.847
RS4					.722		.856
RS5					.693		.851
KD1		.865					.866
KD2		.767					.864
KD3		.851					.855
KD4		.623					.867
KD5		.658					.865
KC1						.595	.861
KC2						.800	.845
KC3						.805	.840
KC4						.872	.832

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	.934
Sig. of Bartlett's Test of Sphericity	.000
Cumulative %	67.864
Eigenvalues	1.108
Note: N = 447	

Source: Authors' elaborations based on a research study

4.2. Confirmatory factor analysis (CFA)

To assess measurement validity, the authors performed confirmatory factor analysis (CFA) by using AMOS 22.0 (Hair et al. 2014). The results generally presented a good level of fit for the measurement models. After assessing each construct, the full measurement model was analyzed in Figure 2. The results of CFA exhibited a reasonably good level of fit: Chi-square = 1417.365, df = 608; p = 0.000. CMIN/df = 2.331 < 0.5 (Kettinger et al., 1995), CFI = 0.923 > 0.9, GFI = 0.852 >0.8, TLI = 0.916 > 0.9 (Bentler and Bonnett, 1980), RMSEA = 0.055 < 0.08 (Awang, 2012). Also, the standardized regression weights of all items are higher than 0.5. Thus, convergent validity is determined at all scales.

4.3. Structural and Meta-Analytic Path Analyses

The overall fit statistics of the model without the control variables illustrated an acceptable level of fit: Chi-square = 1509.738, df = 609; p = 0.000, CFI = 0.915 > 0.9, GFI = 0.846> 0.8, TLI = 0.907 > 0.9, RMSEA = 0.058 < 0.08. So, the original model was used to test the hypothesized relationships.

A total of eight proposed relationships were tested. Four of the eight hypothesized paths were statistically significant. Four of the eight hypotheses were rejected because they were not statistically significant. Specifically, the learning organization culture factor has the strongest

effect on knowledge donating (Estimate = 0.339; p-value = *** < 0.05) and knowledge collecting (Estimate = 0.273; p-value = *** < 0.05), followed by recruitment and selection practice effect on knowledge collecting (Estimate = 0.265; p-value = *** < 0.05) and knowledge donating (Estimate = 0.244; p-value = *** < 0.05). The results of testing the research hypotheses are presented in Table 3.

Table 3. The Results of Testing the Research Hypotheses.

Regression Weights: (Group number 1 - Default model)

Hypotheses				Estimate	S.E.	C.R.	P	Conclusion
H1a	KD	<---	KT	.107	.059	1.815	.069	Rejected
H1b	KC	<---	KT	.052	.058	.891	.373	Rejected
H2a	KD	<---	RW	-.057	.050	-1.136	.256	Rejected
H2b	KC	<---	RW	.092	.050	1.839	.066	Rejected
H3a	KD	<---	LOC	.339	.065	5.172	***	Supported
H3b	KC	<---	LOC	.273	.064	4.254	***	Supported
H4a	KC	<---	RS	.265	.054	4.953	***	Supported
H4b	KD	<---	RS	.244	.053	4.953	***	Supported

*Note: *** < 0.001; S.E: Standard Deviation; C.R: Critical Ratios.*
Source: Authors' study

Analogously to many previous studies, there is no relationship between Knowledge technology on knowledge donating (p-value = 0.069 > 0.05) and knowledge collecting (p-value = 0.373 > 0.05); Rewards on knowledge donating (p-value = 0.256 > 0.05) and knowledge collecting (p-value = 0.066 > 0.05).

5. Discussions

5.1 New academic and theoretical contributions:
Firstly*,* based on the research overview and preliminary research, the study proposes a formal research model by assessing the influence of factors on knowledge sharing (knowledge donating and knowledge collecting). In addition, the article has also converted, compatible, tested reliability, and used scales suitable for the conditions of organizations such as universities in Vietnam.
Second, the study shows that: 1) learning organizational culture has the strongest influence on knowledge sharing among university lecturers. Many researchers have confirmed the relationship of learning organizational culture to knowledge sharing in the past through the results of teamwork and groups that spend time building trust with each other, make lessons learned available, recognize people for taking initiative, and work together with the outside community to meet mutual needs with the learning process that makes organizational performance increase markedly (Fey & Denison, 2000; Goffee & Jones, 1996; Watkins & Marsick, 1996). Signals of great learning organization culture might include, but are not limited to, collaboration, teamwork, good learning organization, good knowledge donating, and knowledge collecting. Knowledge collecting is expressed through scientific research activities (participating in scientific research projects at all levels, writing scientific articles, attending seminars and scientific seminars), learning (training activities, professional retraining, participation in high-level training such as Master's and Doctoral degrees), and group work of lecturers. 2) Recruitment and selection practices positively influence the knowledge sharing of

university lecturers. The findings of this study are similar to previous research results on the relationship between human resource management activities and knowledge sharing among employees in the organization (Jimenez-Jimenez & Sanz-Valle, 2013; Chee-Yang Fong et al., 2011). Edvardsson (2008) considered recruitment and selection, training and development, performance management, reward, and recognition the most influential HR practices for knowledge sharing. Simonin & Ozsomer (2009) also identified HR practices positively related to learning orientation and, thus, knowledge sharing within an organization. In this study, recruitment and selection practices refer to recruitment and selection processes in universities, such as recruitment and selection of personnel; transparency and impartiality in the recruitment and selection process; the appointed positions finding the right people in the right positions; and the establishment of interview and examination committees in the recruitment and selection process.

5.2 New findings and recommendations drawn from the research results:

The study suggests policies and recommendations for educational administrators at universities to promote and enhance knowledge sharing among lecturers. To promote and enhance knowledge sharing, it is necessary to help lecturers increase their ability to use information and communication technology tools, strengthen teamwork, reward lecturers for learning, spend time building trust with each other, and promote learning in the organization. Dedicated recruitment and selection policies should be implemented in a transparent, open, and accessible manner without bias, and the requirements for candidates participating in recruitment and selection should be raised as follows: To stand on the podium, candidates must have at least a master's degree, and preference will be given to candidates who have a doctorate or graduated from a foreign country.

6. Conclusion

The primary purpose of this study is to investigate factors that impact knowledge sharing processes. The findings above indicate some intriguing and mixed results. Overall, the results show a good fit with the five hypotheses supported. Learning organizational culture has a significant positive relationship with knowledge donating and collective knowledge. Meanwhile, recruitment and selection practices also have a significant positive relationship with knowledge donating and knowledge collecting.

Our research contributes to the literature on job engagement in higher education through knowledge sharing among university lecturers. We hope that the results of this study might help higher education institutions develop a strategy to enhance knowledge sharing among university lecturers, which can then play an essential role in improving their teaching and scientific research performance.

Even though this study contributed to engagement and the higher education literature, it is not without limitations. Firstly, expanding the sample beyond Hai Phong, Da Nang, and Ho Chi Minh City may identify biases and yield new insights. Secondly, to discover more dimensions of the relationship between the factors of knowledge technology, rewards, learning organizational culture, recruitment and selection practices, and with knowledge sharing, future research can extend the model by adding new variables such as knowledge self-efficacy, job involvement, trust, attitude, motivation, and barriers, to enrich and contribute to the literature review and practices in the knowledge sharing field. Thirdly, this study only uses the quantitative research method; future research can use both qualitative and quantitative approaches to provide a more meaningful analysis.

References

Abualoush, S. H., Obeidat, A.M., Tarhini, A., Masa'deh, RE., & Al-Badi, A. (2018). The role of employees' empowerment as an intermediary variable between knowledge management and information systems on employees' performance. *VINE Journal of Information and Knowledge Management Systems*, *48*(2), 217-237.

Al-Alawi, A. I., Al-Marzooqi, N.Y., & Mohammed, Y.F. (2007). Organizational culture and knowledge sharing: critical success factors. *Journal of Knowledge Management*, *11*(2), 22-42.

Alavi, M., & Leidner, D. E. (2001). Knowledge management and knowledge management systems: conceptual foundations and research issues. *MIS Quarterly, 25*(1), 107-136.

Anantatmula, V. S. (2007). Linking KM effectiveness attributes to organizational performance. *VINE: The Journal of Information and Knowledge Management Systems*, *37*(2), 133-149.

Awang, Z. (2012). A handbook on SEM: Structural equation modeling. (5th ed.), KualaLumpur, Malaysia: Center of Graduate Studies.

Bartol, K. M., & Locke, E. A. (2000). Incentives and motivation. In S. L. Rynes, & B. Gerhart (Eds.), *Compensation in Organizations: Current Research and Practice* (pp. 104-147). San Francisco: Jossey-Bass.

Bartol, K. M., & Srivastava, A. (2002). Encouraging knowledge sharing: The role of organizational reward systems. *Journal of Leadership and Organizational Studies*, *9*(1), 64-77.

Bock, G.W., Zmud, R.W., Kim, Y. G., & Lee, J.N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly, 29*(1), 87-111.

Borges, R., Bernardi, M., & Petrin, R. (2019). Cross-country findings on tacit knowledge sharing: Evidence from the Brazilian and Indonesian IT workers. *Journal of Knowledge Management*, *23*(4), 742-762.

Cabrera, E.F., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *International Journal of Human Resource Management*, *16*(5), 720-35.

Calantone, R.J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management, 31*(6), 515-24.

Dalkir, K. (2005). *Knowledge management in theory and practice*. Boston, MA: Elsevier Butterworth - Heinemann.

Fey, C., & Denison, D. (2000). Organizational culture and effectiveness: The case of foreign firms in Russia. *SSE/EFI Working Paper Series in Business Administration* No. 2000:4. Retrieved from https://ideas.repec.org/p/hhb/hastba/2000_004.html.

Chatman, J.A. (1991). Matching people and organization: Selection and socialization in public accounting firms. *Administrative Science Quarterly*, *36*(3), 459-84.

Chaudhry, A.S. (2005). Knowledge sharing practices in Asian Institutions: A multi-cultural perspective from Singapore. *Proceedings of the 7th I FLA General Conferenceand Council of the World Library and Information Congress.* Oslo, Norway.

Che, T., Wu, Z., Wang, Y., & Yang, R. (2019). Impacts of knowledge sourcing on employee innovation: The moderating effect of information transparency. *Journal of Knowledge Management, 23*(2), 221-239.

Choi, S. Y., Kang, Y. S., & Lee, H. (2008). The effects of socio-technical enablers on knowledge sharing: An exploratory examination. *Journal of Information Science, 34*(5), 742-754.

Connelly, C.E., & Kelloway, E.K. (2003). Predictors of employees' perceptions of knowledge sharing cultures. *Leadership and Organization Development Journal, 24*, 294-301.

Currie, G., & Kerrin, M. (2003). Human resource management and knowledge management: Enhancing knowledge sharing in a pharmaceutical company. *The International Journal of Human Resource Management*, *14*(6), 1027-45.

Cyril Eze, U., Guan Gan Goh, G., Yih Goh, C., & Ling Tan, T. (2013). Perspectives of SMEs on knowledge sharing. *Vine, 43*(2), 210-236.

De Vries, R.E., Van Den Hooff, B., & De Ridder, J.A. (2006). Explaining knowledge sharing: The role of team communication styles, job satisfaction, and performance beliefs. *Communication Research, 33*(2), 115-135.

Edvardsson, I. R. (2008). HRM and knowledge management. *Employee Relations, 30*(5), 553-561.

Fong, C. Y., Ooi, K. B., Tan, B. I., Lee, V. H., & Chong, A. Y. L. (2011). HRM practices and knowledge sharing: an empirical study. *International Journal of Manpower*, 32(5/6), 704-723.

Foss, N.J., Minbaeva, D.B., Pedersen, T., & Reinholt, M. (2009). Encouraging knowledge sharing among employees: How job design matters. *Human Resource Management, 48*(6), 871-893.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17(*S2), 109-122.

Goffee, R., & Jones, G. (1996). What holds the modern company together. *Harvard Business Review, Nov - Dec,* 133-148.

Goodman, S.A., & Svyantek, D.J. (1999). Person-organization fit and contextual performance: Do shared values matter?. *Journal of Vocational Behavior, 55*(2), 254-75.

Gouldner, A.W. (1960). The norm of reciprocity. *American Sociological Review, 25*(2), 165-167.

Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review, 26*(2), 106-121.

Hogel, M., Parboteeah, K.P., & Munson, C.L. (2003). Team-level antecedents of individuals' knowledge networks. *Decision Sciences, 34*(4), 741-70.

Jimenez-Jimenez, D., & Sanz-Valle, R. (2013). Studying the effect of HR practices on the knowledge management process. *Personnel Review, 42*(1), 28-49.

Kim, S., & Trimi, S. (2007). IT for KM in the management consulting industry. *Journal of Knowledge Management*, *11*(3), 145-155.

Levin, D. Z., & Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer. *Management Science, 50*(11), 1477-1490.

Lin,H. F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower, 28*(¾),315-337.

Lin, H.F., & Lee, G.G. (2004). Perceptions of senior managers toward knowledge-sharing behaviour. *Management Decision, 42*(1), 108-25.

Newell, S., Bresnen, M., Edelman, L., Scarbrough, H., & Swan, J. (2006). Sharing knowledge across projects: Limits to ICT-led project review practices. *Management Learning, 37*(2), 167-85.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5*(1), 14-37.

Nunnally, J.C. (1978). *Psychometric theory.* New York, NY: McGraw-Hill.

Oyemomi, O., Liu, S., Neaga, I., Chen, H. ,& Nakpodia, F. (2019). How cultural impact on knowledge sharing contributes to organizational performance: Using the fsQCA approach. *Journal of Business Research, 94*, 313-319.

Riege, A. (2005). Three-dozen knowledge-sharing barriers managers must consider. *Journal of knowledge management*, *9*(3), 18-35.

Shariq, S.M., Mukhtar, U., & Anwar, S. (2019). Mediating and moderating impact of goal orientation and emotional intelligence on the relationship of knowledge-oriented leadership and knowledge sharing. *Journal of Knowledge Management, 23*(2), 332-350.

Schein, E.H. (1996). Three cultures of management: The key to organizational learning. *Sloan Management Review, 38*(1), 9-20.

Simonin, B., & Ozsomer, A. (2009). Knowledge processes and learning outcomes in MNCs: An empirical investigation of the role of human recourse practices in foreign subsidiaries. *Human Resource Management, 48*(4), 505-530.

Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of management journal, 49*(6), 1239-1251.

Teece, D. J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review, 40*(3), 55-79.

Van Den Hooff, B., & de Leeuw Van Weenen, F. (2004). Committed to share: Commitment and CMC use as antecedents of knowledge sharing. *Knowledge & Process Management, 11*(1), 13-24.

Van den Hooff, B., & de Ridder, J.A. (2004), Knowledge sharing in context: The influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of Knowledge Management,* 8 (6), pp. 117-130.

Van Wijk, R., Jansen, J. J. P., & Lyles, M. A. (2008). Inter- and intra-organizational knowledge transfer: A meta-analytic review and assessment of its antecedents and consequences. *Journal of Management Studies, 45*(4), 830-853.

Watkins, K. E., & Marsick, V. J. (1993). *Sculpting the learning organization: Lessons in the art and science of systemic change (Jossey bass business & management series) (1st ed.)*. San Francisco, Calif., Jossey-Bass.

Watkins, K. E., & Marsick, V. J. (1996). Adult educators and the challenge of the learning organization. *Adult Learning, 7*(4), 18-20.

Watkins, K. E., & Marsick, V. J. (2019). Conceptualizing an organization that learns. In Ortenblad A. (Ed.), *The Oxford Handbook of the Learning Organization (pp. 51-66).* New York: Oxford University Press.

Wang, S., & Noe, R.A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review, 20*(2), 115-131.

Wolfe, C., & Loraas, T. (2008). Knowledge sharing: The effects of incentives, environment, and person. *Journal of information systems, 22*(2), 53-76.

Appendix A

Scales used in the final analyses:

Knowledge technology (KT)
Our organization introduces new technology platforms that enable knowledgesharing for more effective operations.
Our organization has expertise in the usage and maintenance of critical information infrastructure, e.g., intranet, internet, and groupware.
Our organization system infrastructure is updated regularly to facilitate effective knowledge sharing and creation.
Our extranet system facilitates conditional tasks between our organization and our stakeholders.
Social network systems enable the search and sharing of ideas and information within the organization and with our stakeholders.
Our groupware system enables knowledge sharing among employees.
Our intranet system enables the sharing of ideas and critical documents.
Rewards (RW)
There are promotion opportunities for me if I share my experiences and my knowledge with my colleagues
There are promotion opportunities for me if I share my experiences and knowledge with external stakeholders.
I gain job security by supporting initiatives that foster knowledge creation.
I gain job security by supporting initiatives that foster knowledge dissemination.
Learning organizational culture (LOC)
In my organization, people are rewarded for learning.
In my organization, people spend time building trust with each other.
In my organization, teams/groups revise their thinking as a result of group discussions or information collected.
My organization makes its lessons learned available to all employees.
My organization recognizes people for taking initiative.
My organization works together with the outside community to meet mutual needs.
Recruitment and selection practice (RS)
The recruitment and selection processes in this organization are impartial.
Favors are not evident in any of the recruitment decisions made here.
This organization does not need to pay more attention to how it recruits people.
All appointments in this organization are based on merit (the best person for the job is selected regardless of their personal characteristics)
Knowledge donating (KD)
I would like to share my personal experiences with my close colleagues.
I would like to share the knowledge I gained from outside my organization with my colleagues.
I would like to share my expertise on work processes with my colleagues who support my work activities.

Knowledge technology (KT)
I would like to share my knowledge from the training I have attended with my colleagues.
I would like to share ideas and thoughts with my colleagues to allow for better work processes and performance.
Knowledge collecting (KC)
Colleagues within my department tell me what they know when I ask them about it.
Colleagues within my department tell me what their skills are when I ask them about it.
Colleagues outside of my department tell me what they know when I ask them about it.
Colleagues outside of my department tell me what their skills are when I ask them about it.