

Knowledge Sharing and Individuals' Work Performance: A Virtuous Spiral

Ângela Teixeira¹, Paulo L. Henriques¹ & Maria C. Santos¹

¹Economics and Business School, Universidade de Lisboa, Lisboa, Portugal

Correspondence: Paulo L. Henriques, ISEG - Economics and Business School, Universidade de Lisboa, Rua Miguel Lupi, 20, Lisboa, Portugal.

Received: April 26, 2018

Accepted: May 21, 2018

Online Published: June 3, 2018

doi:10.5430/ijfr.v9n3p53

URL: <https://doi.org/10.5430/ijfr.v9n3p53>

Abstract

The research on knowledge management, specifically on knowledge sharing, finds that the efficient use of knowledge in organizations has an influence on a variety of organizational indicators. This paper explores the relation between knowledge sharing and individuals' work performance. We conduct a survey of 309 employees from different firms. The responses show that knowledge sharing has a positive relation with individuals' work performance and with HR practices. On the other hand, the responses indicate that the performance appraisal and the work design could have a significant effect on the virtuous spiral of the adoption of knowledge sharing. Further, these findings indicate that knowledge is highly valued by employees.

Keywords: knowledge management, knowledge sharing behavioral, individual performance, practices in HRM

1. Introduction

Sharing is a key component in building knowledge in organizations (Cabrera and Cabrera, 2005; Foss, Husted, and Michailova, 2010). The highly different natures of organizations and knowledge management are evidence of the multiple perspectives on the subject (Argote, McEvily, and Reagans, 2003; Serenko and Bontis, 2004). Foss et al. (2010) show that the knowledge sharing literature is preoccupied with constructs, processes, and phenomena defined at a macro level and therefore pay comparatively little attention to the micro level. Therefore, we argue that it is crucial that future research fills this gap.

2. Theoretical Setting

2.1 Knowledge Sharing

Although knowledge is one of the most important resources in modern firms, the research contains a wide range of definitions on knowledge management. Thus, finding one is a complex task (Lindner and Wald, 2011). Teece (2000) describes knowledge management as a set of procedures and techniques used to create, transfer, use, and protect the organization's knowledge. These activities sustain its competitive advantage. To Chen, Lu, Widjaja, and Yen, (2016), the key is the implementation of a knowledge management system; while for Navimipour and Charband, (2016) knowledge management is the process of capturing, sharing, developing, and using knowledge efficiently. As a result, controlling knowledge is critical and can be the source of an organization's power (Carrión, González and Leal, 2004) and competitive advantage (Nonaka, 1994).

The research demonstrates that knowledge management could improve organizational performance (Chang and Chuang, 2011). But to be successful, organizations must adopt management knowledge strategies and view knowledge as a crucial strategic resource (Barney, 1991) for innovation and value creation (Yang, 2010). Therefore, organizations play a critical role in articulating and amplifying knowledge created by individuals, groups, organizations, and society by developing a continuous dialogue between tacit and explicit knowledge. In turn, this dialogue promotes the spiral of knowledge in a dynamic and continuous way (Nonaka, 1994).

Knowledge sharing is one of the most important components of knowledge management (Navimipour and Charband, 2016). It refers to the knowledge transfer between different individuals and groups, absorption of knowledge of other firms, and knowledge acceleration (Du *et al.*, 2007). Thus, individuals have a crucial impact on this component through their motivation and involvement (Henttonen, Kianto, and Ritala, 2016). This emphasis is also linked to the intangibility of organizational knowledge (Nonaka, 1994). In other words, each individual has important knowledge

that no one else has (Henttonen *et al.*, 2016). Therefore, we focus on the individual and the management practices that affect him or her.

The foundation of knowledge sharing has some social and intrinsic aspects (Lin, 2007; Gagné 2009; Wu, Wei-Li., Yeh, Ryh-Song., Hung and Hao-Kai, 2012; Hau, Kim, Lee, and Kim, 2013), but also some organizational aspects (Gagné 2009; Wang and Noe, 2010). The research shows that organizations that promote a culture of knowledge sharing incorporate knowledge of the business structure to encourage the attitudes and behaviors of their employees to promote the will and consistency of knowledge sharing (Lee and Choi, 2003; Jones, Cline and Ryan, 2006 *cit in* Lin, 2007). Wang and Noe (2010) argue that the success of initiatives in knowledge management depends on knowledge sharing. They highlight the organizational context, interpersonal, team, cultural and individual characteristics, and motivational factors as critical areas. At the individual level, studies stress management and attribution as antecedents, namely, employees can choose to share knowledge in order to develop personal relationships with peers, or to manage the impressions of others. The results indicate that the individual's propensity to share knowledge and experience results from the perception of personal benefits and the costs associated that are aligned with organizational factors (Navimipour and Charband, 2016).

2.2 Human Resources Practices

The research on knowledge sharing finds that this sharing should be encouraged or promoted but cannot be enforced (Bock *et al.*, 2005). This research is diverse but complementary. Some studies focus on the individual and his or her personality (Matzler, Renzl, Müller, Herting, and Mooradian, 2008). Others focus on understanding the effects of organization, autonomy, rewards, supervisor and peer support, and management systems on knowledge sharing (Cabrera, Collins, and Salgado, 2006). However, few studies focus on the effects of HR practices on knowledge sharing (Kim and Ko, 2014). At the organizational level, the HR practices and organizational culture can influence knowledge sharing (Liu and DeFrank, 2013). The HR practices combine technical systems (information systems) with HRM systems (team work) (Hsu, 2008) as well as research and development projects. The combination of different available knowledges can lead to the creation of new knowledge (Du *et al.*, 2007). Specifically, through these practices, organizations identify, attract, and hire individuals with skills, abilities, and knowledge that the organization desires (Minbaeva, 2013).

HR practices, such as work design, promotions, and performance-based compensation, can increase employees' motivation to share knowledge (Hau *et al.*, 2013). Through these HR practices, it is possible to identify elements such as autonomy, task identification, and feedback that can stimulate knowledge sharing (Cabrera *et al.*, 2006; Foss *et al.*, 2010; Minbaeva, 2013) and can promote the alignment between individual actions and organizational results (Minbaeva, 2013). Thus, we propose the following hypotheses:

H1: HRP positively influence employees' knowledge sharing.

H2: Individuals' work performance positively influences their knowledge sharing.

For the organization, knowledge sharing leads to increased work performance (Henttonen *et al.*, 2016). But, to employees the knowledge sharing can lead to significant costs that have a negative influence on knowledge sharing and can overshadow its potential benefits (Cabrera and Cabrera, 2002). Nowadays, individuals are no longer elements of the productive system but owners of the most important production factor: knowledge (Kang *et al.*, 2008). Following this argument, Kang *et al.* (2008) emphasize training, reward systems, management support, and openness to communication as variables with a positive influence on knowledge sharing and work performance. It is expected that human resources management practices to have impact in the individual's work performance (Minbaeva, 2013; Jiang *et al.* 2012). Among the human resources practices an especial emphasis should be made to practices such as reward systems, performance appraisal system or training and development system (Hau *et al.* 2013; Foss *et al.*, 2010).

H3: HRP positively influences individuals' work performance.

The research shows that performance appraisal systems that include the assessment of knowledge sharing, feedback, and rewards contribute to knowledge sharing because they satisfy the needs of competence, satisfaction, and a sense of autonomy (Cabrera and Cabrera, 2005). Thus, performance appraisal interviews could be an opportunity to communicate the values of knowledge sharing (Matzler and Mueller, 2011). Turning sharing knowledge into a motivator to achieve a better individual's work performance (Akram and Bokhai, 2011).

Therefore, we expect that:

H4: Knowledge sharing positively influences individuals' work performance.

3. Methods

3.1 Data Collection

In order to collect useful information for the study, we conducted three exploratory interviews. After that, we built a questionnaire that we pretested. In the pretest, we obtained 19 answers that led to some corrections and the cancellation of some questions. This process ensured that the language, format, and sequence were in agreement with the objectives of the study. Finally, we completed the questionnaire and sent it out via email with an online response link using a snowball technique. We firstly sent the email to persons that we knew, and ask them to send to friends that in their opinion would be the best to participate into the research asking them to participate and recruit others. The sentences and the sources of the variables are in the annex I. The respondent was invited to rate each sentence from 0 – non applicable to 5 - fully agree, reflecting is awareness about the HR practices in the organizations or his feeling about sharing knowledge and individual's work performance. We collected 362 questionnaires through the Qualtrics platform. Of these, only 309 were valid and the others were canceled because of missing answers.

3.2 Analysis

Table 1A and Table 1B show the sociodemographic structure of the respondents. With the help of the SPSS software, we tested our model with a factor analysis of the variables (1) knowledge sharing (KMO =0.662; α =0.708), (2) HR practices (KMO=0.905; α =0.903), and (3) individuals' work performance (KMO =0.850; α =0.862).

Table 1A. Descriptive statistics

		Frequency (N)	Percentage (%)
Gender	Male	99	32.0
	Female	210	68.0
	Total	309	100
Age	<=30	101	32.7
	31-40	152	49.2
	41-50	39	12.6
	>=51	17	5.5
	Mean	34.92	
	(Std. desviation)	(7.55)	
	Min.	23	
Educational level	Max.	62	
	Basic school	1	0.3
	High school	21	6.8
	Graduate	172	55.7
	Master degree	105	34.0
	Phd	10	3.2

Table 1B. Descriptive statistics

		Frequency N	Percentage %
Working experience	0-1 year	42	13.6
	>1-2 years	40	12.9
	>2-5- years	81	26.2
	Over 5 years	146	47.2
Team management responsibility	Yes	131	42.4
	No	178	57.6
N °team members	Less 5 members	57	43.5
	6-10 members	38	29.0
	11-20 members	15	11.5
	Over 20 members	21	16.0

The results from table 2 indicate we find that knowledge sharing and HR practices (HRP) have a strong correlation with individuals' work performance.

Table 2. Correlations results (N =309)

	HRP	Knowledge sharing	Individuals' work performance
HRP	1.000	.177**	.270**
Knowledge sharing	.177**	1.000	.230**
Individuals' work performance	.270**	.230**	1.000

** indicates that the correlation is significant at the 0.01 level (2-tailed)

Table 3 summarizes the results of regression analysis for model I where the dependent variable is knowledge sharing. From Table III we can confirm that knowledge sharing has a positive effect on individuals' work performance ($\beta=0.338$) and the HRP ($\beta=0.096$), this result proves hypotheses H1 and H2.

Table 3. Regression analysis results model I

Knowledge sharing		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics	
		β	Std. Error	β	p	Sig.	Tolerance VIF
(Constant)		2.531	0.255		9.909	0.000	
individuals' work performance	work	0.363	0.059	0.338	6.116	0.000	0.917 1.090
HRP		0.064	0.037	0.096	1.745	0.082	0.917 1.090
Adjusted R Square		.137					
F		25.389					

We develop a second model considering individuals' work performance as dependent variable. This model seeks to expand the study of the effects by reversing the causality between Individual's work performance and knowledge sharing. The goal is to analyze H3 and H4. Table 4 shows that the individuals' work performance is positively affected by knowledge sharing ($\beta=0.227$) and HRP ($\beta=0.154$). and thus the hypothesis H3 and H4 are proven.

Table 4. Regression analysis results model II

Individuals' work performance		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics	
		β	Std. Error	β	p	Sig.	Tolerance VIF
(Constant)		2.362	0.232		10.194	0.000	
Knowledge sharing		0.212	0.057	0.227	3.706	0.000	0.683 1.465
HRP		0.095	0.039	0.154	2.441	0.015	0.639 1.565
Adjusted R Square	R	0.227					
F		14.8					

The results allow us to not reject the formulated hypotheses. Although the influence of HR practices is stronger when the dependent variable is the individuals' work performance because the β is higher, its influence is present in both models as expected. Another important result is the strong β of Knowledge sharing (0.212) in model II and the also strong value of individual's work performance in model I $\beta = (0.227)$. That might be indicating a simultaneous causation (see Merton, 1968) between individual's work performance and knowledge sharing, resembling the feedback loop sometimes called the "Matthew Effect" or "cumulative advantage."

4. Discussion

The empirical results provide valuable support for the relation between HRP and knowledge sharing that confirms H1. This result is consistent with the perspective taken in previous studies (Jiang *et al.*, 2012, Kim and Ko, 2014, Minbaeva, 2013, Liu and DeFrank, 2013) that support this relation between HRP and knowledge sharing. For H2, the findings do not reject this hypothesis and are consistent with other studies like Henttonen *et al.* (2016), Kang *et al.* (2008), and Reychav and Weisberg (2009). Finally, we examine the relation between knowledge sharing (H3) and HRP (H4) with the individuals' work performance as the dependent variable, and our results do not reject the hypotheses and are consistent with the findings of Henttonen *et al.* (2016), Cabrera and Cabrera (2002), and Kang *et al.* (2008).

These findings indicate that HR practices tend to have a lower capacity to influence knowledge sharing when compared to the model where the dependent variable is the individuals' work performance. Further, we found evidence that the relation between individuals' work performance and knowledge sharing is positive, strong and interdependent. These findings could indicate that knowledge sharing is reliant on the effect that they have on the individuals' work performance. The results suggest that individuals will adopt knowledge sharing more easily if they know that it has an impact on their work performance and having better work performance leads to a higher knowledge sharing creating a virtuous spiral. This notion however needs to be carefully considered. As Merton (1968) advised this relation could easily put apart the workers less knowledge sharing or less performant concentrating all the rewards on the ones that already share knowledge and have high performance (accepting that more performance, will correspond a more reward at individual level), the vicious spiral. So the organization in order to fully benefit from this virtuous spiral needs to adopt a performance appraisal system that among others evaluations clearly evaluates the knowledge sharing and its impact on the work performance. Such system should identify those workers that effectively share knowledge and the ones that are not sharing. Establishing the basis to implement a motivation system to increase knowledge sharing. Thus preventing the negative aspects of the "Matthew effect" (Merton, 1968).

5. Conclusions

In this study, our aim has been to analyze the relation between knowledge sharing, individuals' work performance, and HR practices. The findings support theoretical streams between knowledge sharing and individuals' work performance and the importance of HR practices.

These results emphasize two ideas: a) HR practices have different effects if we focus on knowledge sharing or performance, with a major effect on performance; b) the link between performance and knowledge sharing is strong and interdependent. Based on this interdependence, we can infer that knowledge has an intrinsic value for the individual and that this value is reflected in his or her performance. Additionally the individual's assume that their work performance facilitate the knowledge sharing.

The results of our study have two implications. First, the development of HR practices with a focus on the adoption of knowledge sharing might not be effective. Second, our results suggest that what would be more productive, to organize the work in the organization in order to compel knowledge sharing, which requires an understanding of the importance of adopting knowledge sharing in work performance than HR practices aimed at promoting knowledge sharing.

Our results indicate another interesting conclusion, which results from the observed interdependence between knowledge sharing and work performance. This interdependence suggests that when the individuals' work performance levels rise as a result of knowledge sharing, the employees feel more motivated to adopt knowledge sharing. Thus, this establishes a virtuous spiral of individual performance and knowledge sharing. This conclusion however needs to be carefully considered giving the discussion made above.

With regard to the research limitations, the first is our use of a convenience sample that limits the extrapolation of the results from a sector of activity. Another limitation comes from the measurement of the construct of individuals' work performance that is based on a self-assessment. Thus, the individuals' performance evaluation is highly

overvalued, as is visible in the high mean of response in this indicator (mean = 4.35). This result does not allow the other variables to explain the differences in the individuals' work performance. However, this is acceptable in view of the exploratory nature of this work.

Finally, according to Wang and Noe (2010), quantitative studies of knowledge suffer from several significant limitations, such as social desirability. We only measure the willingness (or intention) to share knowledge. According to Henttonen *et al.*, (2016) to overcome these limitations, other methods could be tested to provide a better understanding of the relation between knowledge sharing and work performance, such as cross-data from multiple methods of analysis, namely observation and laboratory experiments with knowledge sharing situations, peer evaluation, and data from performance appraisal. Therefore, future studies should test different activity sectors and use multiple methods of analysis to test the validity of our findings.

Acknowledgments

The authors are grateful for the support provided by FCT (Foundation for Science and Technology - Portugal) under the project number - UID / SOC / 04521/2013.

References

- Akram, F., & Bokhai, R. (2011). The role of knowledge sharing and individual performance, considering the factor of motivation – the conceptual framework. *International Journal of Multidisciplinary Sciences and Engineering*, 4(9), 44-48.
- Argote, L., McEvily, B., & Reagans, R. (2003). Managing Knowledge in Organizations: An Integrative Framework and Review of Emerging Themes. *Management Science*, 4, 571-582. <https://doi.org/10.1287/mnsc.49.4.571.14424>
- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- 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. <https://doi.org/10.2307/25148669>
- Cabrera, A., & Cabrera, E. F. (2002). Knowledge-Sharing Dilemmas. *Organization Studies*, 23(5), 687-710. <https://doi.org/10.1177/0170840602235001>
- Cabrera, A., Collins, W. C., & Salgado, J. F. (2006). Determinants of individual engagement in knowledge sharing. *International Journal of Human Resource Management*, 17(2), 245-264. <https://doi.org/10.1080/09585190500404614>
- Cabrera, E. F., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *International Journal of Human Resource Management*, 16(5), 720-735. <https://doi.org/10.1080/09585190500083020>
- Carrián, G., González, J., & Leal, A. (2004). Identifying key knowledge area in the professional services industry: a case study. *Journal of Knowledge Management*, 8(6), 131-150. <https://doi.org/10.1108/13673270410567684>
- Chang, T.-C., & Chuang, S.-H. (2011). Performance implications of knowledge management processes: Examining the roles of infrastructure capability and business strategy. *Expert Systems with Applications*, 38(5), 6170-6178. <https://doi.org/10.1016/j.eswa.2010.11.053>
- Chen, J., Lu, I., Widjaja, A., & Yen, D. (2017). Factors affecting the performance of internal control task team in high-tech firms. *Information Systems Frontiers*, 19, 787-802. <https://doi.org/10.1007/s10796-015-9621-y>
- Collins, C. J., & Smith, K. G. (2006). Knowledge Exchange and Combination: The Role of Human Resource Practices in the Performance of High-Technology Firms. *Academy of Management Journal*, 49(3), 544-560. <https://doi.org/10.5465/amj.2006.21794671>
- Du, R., Ai, S., & Ren, Y. (2007). Relationship between knowledge sharing and performance: A survey in Xi'an, China. *Expert Systems with Applications*, 1, 38-46. <https://doi.org/10.1016/j.eswa.2005.11.001>
- Foss, N. J., Husted, K., & Michailova, S. (2010). Governing Knowledge Sharing in Organizations: Levels of Analysis, Governance Mechanisms, and Research Directions. *Journal of Management Studies*, 47(3), 455-482. <https://doi.org/10.1111/j.1467-6486.2009.00870.x>

- Gagné M. (2009). A model of knowledge-sharing motivation. *Human Resource Management*, 48(4), 571-589. <https://doi.org/10.1002/hrm.20298>
- Hau, Y., Kim, B., Lee, H., & Kim, Y. (2013). The effects of individual motivations and social capital on employees' tacit and explicit knowledge sharing intentions. *International Journal of Information Management*, 33(2), 356-366. <https://doi.org/10.1016/j.ijinfomgt.2012.10.009>
- Henttonen, K., Kianto, A., & Ritala, P. (2016). Knowledge sharing and individual work performance: an empirical study of a public sector organisation. *Journal of Knowledge Management*, 20(4), 749-768. <https://doi.org/10.1108/JKM-10-2015-0414>
- Hsu, I.-C. (2008). Knowledge sharing practices as a facilitating factor for improving organizational performance through human capital: A preliminary test. *Expert Systems with Applications*, 35, 1316-1326. <https://doi.org/10.1016/j.eswa.2007.08.012>
- Jiang, K., Lepak, D. P., Han, K., Hong, Y., Kim, A., & Winkler, A.-L. (2012). Clarifying the construct of human resource systems: Relating human resource management to employee performance. *Human Resource Management Review*, 22, 73-85. <https://doi.org/10.1016/j.hrmr.2011.11.005>
- Kang, Y.-J., Kim, S.-E., & Chang, G.-W. (2008). The impact of knowledge sharing on work performance: an empirical analysis of the public employees' perceptions in South Korea. *International Journal of Public Administration*, 14, 1548-1568. <https://doi.org/10.1080/01900690802243607>
- Kim, Y., & Ko, J. (2014). HR Practices and Knowledge Sharing Behavior: Focusing on the Moderating Effect of Trust in Supervisor. *Public Personnel Management*, 43(4), 586-607. <https://doi.org/10.1177/0091026014542342>
- Lin, H.-F. (2007). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of Information Science*, 33(2), 135-149. <https://doi.org/10.1177/0165551506068174>
- Lindner, F., & Wald, A. (2011). Success factors of knowledge management in temporary organizations. *International Journal of Project Management*, 29, 877-888. <https://doi.org/10.1016/j.ijproman.2010.09.003>
- Liu, Y., & DeFrank, R. (2013). Self-interest and knowledge-sharing intentions: the impacts of transformational leadership climate and HR practices. *International Journal of Human Resource Management*, 24(6), 1151-1164. <https://doi.org/10.1080/09585192.2012.709186>
- Matzler, K., & Mueller, J. (2011). Antecedents of knowledge sharing – Examining the influence of learning and performance orientation. *Journal of Economic Psychology*, 32, 317-329. <https://doi.org/10.1016/j.joep.2010.12.006>
- Matzler, K., Renzl, B., Müller, J., Herting, S., & Mooradian, T. A. (2008). Personality traits and knowledge sharing. *Journal of Economic Psychology*, 29, 301-313. <https://doi.org/10.1016/j.joep.2007.06.004>
- Merton, R. K. (1968). The Matthew Effect in Science. *Science*, 159(3810), 56-63. <https://doi.org/10.1126/science.159.3810.56>
- Minbaeva, D. B. (2013). Strategic HRM in building micro-foundations of organizational knowledge-based performance. *Human Resource Management Review*, 23, 378-390. <https://doi.org/10.1016/j.hrmr.2012.10.001>
- Navimipour, N. J., & Charband, Y. (2016). Review: Knowledge sharing mechanisms and techniques in project teams: Literature review, classification, and current trends. *Computers in Human Behavior*, 62, 730-742. <https://doi.org/10.1016/j.chb.2016.05.003>
- Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 1(5), 14-37. <https://doi.org/10.1287/orsc.5.1.14>
- Reychav, I., & Weisberg, J. (2009). Good for workers, good for companies: How knowledge sharing benefits individual employees. *Knowledge & Process Management*, 16(4), 186-197. <https://doi.org/10.1002/kpm.335>
- Serenko, A., & Bontis, N. (2004). Meta-review of knowledge management and intellectual capital literature: citation impact and research productivity rankings. *Knowledge & Process Management*, 11(3), 185-198. <https://doi.org/10.1002/kpm.203>
- Teece, D. J. (2000). Strategies for Managing Knowledge Assets: the Role of Firm Structure and Industrial Context. *Long Range Planning*, 33, 35-54. [https://doi.org/10.1016/S0024-6301\(99\)00117-X](https://doi.org/10.1016/S0024-6301(99)00117-X)

- Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20, 115-131. <https://doi.org/10.1016/j.hrmr.2009.10.001>
- Wu, Wei-Li., Yeh, Ryh-Song., & Hung, Hao-Kai. (2012). Knowledge Sharing and Work Performance: A Network Perspective. *Social Behavior and Personality*, 40(7), 1113-1120. <https://doi.org/10.2224/sbp.2012.40.7.1113>
- Yang, J. (2010). The knowledge management strategy and its effect on firm performance: A contingency analysis. *International Journal of Production Economics*, 125(2), 215-223. <https://doi.org/10.1016/j.ijpe.2010.03.012>

Appendix I. Items and Constructs

Construct	Items Measuring	Source	loadings
Knowledge sharing (Q9)	(Q9_1) I share knowledge with other members of the organization	Adapted from: Chen <i>et al.</i> , (2016)	0.782
	(Q9_2) I want to improve how I share knowledge to other team members		0.778
	(Q9_3) It is valuable for me to share knowledge to other team members.		0.848
			(KMO = 0.662) (% var = 64.56)
HR practices (Q10)	(Q10_1) The company uses senior personnel to mentor junior employees.	Adapted from: Hsu, (2008)	0.641
	(Q10_2) The company analyzes past mistakes and disseminates the lessons learned among its employees.		0.805
	(Q10_3) The company invests in IT systems that facilitate knowledge sharing.		0.750
	(Q10_4) The company develops knowledge sharing mechanisms.		0.810
	(Q10_5) The company offers incentives to encourage knowledge sharing.		0.861
	(Q10_6) The company provides training programs with the focus on competencies.	Own based on diverse literature	0.786
	(Q10_8) The company provides on the job training programs.		0.704
	(Q10_10) The company doesn't have HR practices available.		0.961
	(Q10_7) The company provides multiple career path opportunities for employees to move across multiple functional areas of the company	Adapted from: Collins&Smith, (2006)	0.842
	(Q10_9) The company use job rotation to expand the skills of employees		0.779
			(KMO = 0.995) (% var = 55.82)
Individuals' work performance (Q12)	(Q12_1) I fulfill the tasks and responsibilities assigned to me	Own based on diverse literature	0.838
	(Q12_2) I fulfill the professional objectives defined by the organization		0.821
	(Q12_3) I have the skills to accomplishment my work		0.830
	(Q12_4) I feel satisfied with my performance		0.782
	(Q12_5) My professional skills are an asset to the organization		0.764
			(KMO = 0.850) (% var = 65.62)