

Learning organizations and knowledge management: Which one enhances another one more?

Hossein Vazifeh Dust^a, Mahdiyeh Kalantari Dehaghi^{b*} and Raheim Sadeghi Demneh^c

^aFaculty member, Science and Research Branch, Islamic Azad University, Tehran, Iran

^bPh.D student in Financial Management, Department of Management, Science and Research Branch, Islamic Azad University (IAU), Tehran, Iran

^cMSc in Financial Management, University of Economics Sciences, Tehran, Iran

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ABSTRACT

This paper presents an empirical investigation to detect whether knowledge management (KM) promotes learning organization (LO) or vice versa. The proposed study tries to find out the positive influences of KM components including knowledge acquisition, sharing, and utilization with different LOs dimensions. The study was performed among managers and members of societies of software and computer engineering field in city of Tehran, Iran. One time knowledge management processes were seen as independent variable and another time considered as dependent variables. Pearson correlation and regression analysis were used to test the hypothesis. The results show that KM promotes OLs more than OLs promotes KM.

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1. Introduction

The knowledge management (KM) is a crucial skill for business organization. Knowledge management describes a systematic plan to ensure that an organization's knowledge base is properly paired with the potential of individual skills, competencies, ideas, innovations, and musical themes. The primary objective is to ensure the full utilization of the existing potentials and to create a more efficient and effective organization (Dalkir, 2005). KM consists of creation and distribution of knowledge and it is increasingly recognized as a priority in the competitive businesses.

Apart from KM, organizations can proactively manage changes by considering a continuous development as their culture to become a Learning Organization (LO) (Karkoulian et al., 2013). Organizations need to learn how to survive and how to succeed in the challenging and uncertain environments. Learning organizations encourage and assist all members learn continuously, through participation in learning, information sharing, and teamwork activities. There is an interrelation

*Corresponding author.

E-mail addresses: mahdiye_kl@yahoo.com (M. Kalantari Dehaghi)

between LO and KM as both depends on each other to approach the success. But It is impossible to answer the question which came first. A fundamental stage to become LO is to pay attention to both of these factors, simultaneously. This requires an understanding of their different properties and goals, and their relationships (Aggestam, 2006). However, no study in Iran has conducted to investigate the association between the two concepts. Therefore, the ultimate goal of this research paper is to empirically measure the relationship between KM and LO to test whether KM promotes LO or vice versa

Knowledge Management

The knowledge is regarded as strategic company's resource as it enhances the organization potentials to reach the goals in the challenging situations and market competitions. Modern companies should recognize all business processes as KM. To create an efficient discussion, the relevant information should be properly transferred within all levels of an organization. KM is the process of evaluation and implementation of knowledge and these are collected from inside and outside the organization to promote a system performance (Jelenic, 2011). Although, there is no universally accepted definition of knowledge management, there are numerous definitions suggested by experts. Very simply, "knowledge management is the conversion of tacit knowledge into explicit knowledge and sharing it within the organization" (Uriarte, Jr., 2008). Knowledge management is a discipline that seeks to maintain and to leverage the present and future value of knowledge assets, to improve the performance of individuals and organizations (Newman & Conrad, 1999). Knowledge management is the systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value innovation. This can be achieved through the promotion of creating, sharing, and applying knowledge as well as through sharing experiences learnt and the best practices into corporate memory (Dalkir, 2005). Most literatures related to KM assume that knowledge acquisition (KA), knowledge sharing (KS) and knowledge utilization (KU) are the fundamental processes of KM. In this research KA, KS and KU are considered as fundamental processes of KM (Karkoulian et al., 2013).

Learning Organization

The individuals or organizations try to adapt to their new environment and compete with developmental processes (Nielsen & Lundvall, 2003). Organizations need managers who make the right decisions through skill and sound judgment. Successful decision-making requires an organization that improves its capability to learn new behaviors over time (Torlak, 2011). A learning organization is a system, which learns actively and continually transforming itself to better collect, manage, and use knowledge for corporate success. It empowers people within and outside the company to learn as they work (Marquardt, 2002). In today's dynamic business world, it is not enough that knowledge to be possessed at the individual level. New technologies and increased competition require that knowledge be shared and be utilized at an organizational level if a company hopes to survive (Chinowsky & Carrillo, 2007).

Although some researchers tend to use OL and LO instead of each other but there are some differences between these two concepts. OL and LO are distinguished by their relative emphases on learning processes and structures. The phrase "organizational learning" suggests emphasis on process. In contrast, "learning organization" emphasizes unique structural characteristics of an organization that has the ability to learn. (Ang & Joseph, 1996). Marsick and Watkins (2003) developed a questionnaire that assesses learning activities at all organizational levels. They identified seven dimensions for learning organizations. Dimensions that are associated with individual level include: "Continuous Learning" opportunities and "Inquiry and Dialogue". The only dimension that is associated with group level is: "Team Learning". Two other dimensions extend to the organizational level and include: "Embedded Systems" and 'Empowerment'. The last two dimensions are

“System Connections” and “Strategic Leadership” (Karkoulian et al., 2013). In this research, Marsick and Watkins’s questionnaire is used.

Learning Organization & Knowledge Management

Many studies have been accomplished for understanding relationship between LO and KM. For example Aggestam (2006) in her theoretical study identified a significant relationship between KM and LO. KM can be regarded as a subsystem of LO; changes in KM results in changes in the organization and vice versa. The strong relationship between them is clear, and the process to become a LO must include KM. A LO can be regarded as the system, which includes the subsystem KM. This is in accordance with Senge’s idea that system’s thinking must be the conceptual cornerstone (Aggestam, 2006). Loermans (2002) believed that KM and LO cannot be existed without each other. An organization that wishes to become a learning organization must therefore pay attention to both in parallel. This requires both an understanding of their different properties and goals, and their relationships. A LO has a climate and a culture which sees knowledge sharing and learning as something necessary and positive. On an individual level, everybody wants to contribute with his/her knowledge, and to take part of other people’s knowledge. In the daily work, this knowledge work must be an integrated part. KM aims to support this, and is in a way a concrete connection between the individual and organizational level (Aggestam, 2006). Jamalzadeh (2012) in his study deals with the relationship between knowledge management of the faculty members of the Islamic Azad University, Shiraz Branch and organizational learning. Analytical and descriptive statistics were employed in this research and the results show that there was a positive and meaningful relationship between knowledge management’s elements and organizational learning. Nodehi et al. (2013) examined the relationship between learning organization and knowledge management the Islamic Azad University of Sabzevar Branch. They used descriptive and inferential statistical methods for data analysis. Their findings showed that there was a statistical and significant relationship between the indicators of success of knowledge management and learning organization at the Islamic Azad University of Sabzevar Branch. Karkoulian et al. (2013) in their empirical study assessed the independence of LO and KM, then KM’s fundamental processes were hypothesized to have a positive relationship with the different LO dimensions. Retail business employees working in organizations in Lebanon were surveyed. Bartlett’s test, Pearson correlation, factor analysis, and regression analysis were used to test the hypothesis. Their results indicated that the two dimensions LO and KM were distinct and that KM enhances LO more than LO enhances KM.

2. The proposed study

2.1 Research hypotheses

This study investigates the relationship between KM and LO in software and computer incorporations located in Tehran through examining the following hypotheses:

- H₁: KA is in association with variables of the LO.
- H₂: KS is in association with variables of the LO.
- H₃: KU is in association with variables of the LO.
- H₄: Continuous Learning is in association with the processes of KM.
- H₅: Dialogue and Inquiry is in association with the processes of KM.
- H₆: Team Learning is in association with the processes of KM.
- H₇: Embedded Systems are in association with the processes of KM.
- H₈: Empowerment is in association with the processes of KM.
- H₉: System Connections are in association with the processes of KM.
- H₁₀: Strategic Leadership is in association with the processes of KM.

2.2 Methodology

To investigate the interactions between KM and Lo the IT incorporations located in Tehran were recruited and 385 managers in these incorporations were randomly selected. Three questionnaires were used for data collection, demographic characteristics, knowledge management and learning organization. The Learning Organization Questionnaire (DLOQ 1997) developed by Watkins and Marsick (1997). It was a 45-item questionnaire: seven items asking about Continuous Learning (Q.1-Q.7), six on Dialogue and Inquiry (Q.8-Q.13), six on Team Learning (Q.14-Q.19), six for Embedded Systems (Q.20-Q.25), six for Empowerment (Q.26-Q.31), six to System Connections (Q.32-Q.37), and six to Leadership (Q.38-Q.43). The third part measured KM processes. For this purpose, the researchers used the Organization for Economic Cooperation and Development scale (OECD 2003). This scale was developed by the Public Management service OECD (PUMA). This survey's questions were originally adapted from work accomplished by Karkoulian et al. (2013). The OECD questionnaire was reviewed and scrutinized for significance and usability by experts within the field of KM (Kruger & Snyman, 2007). For this study, from the overall questionnaire, we adapted the 15 statements relating to KM processes. Five for KA (Q.44-Q.48), five to KS (Q.49-Q.53), and five to KU (Q.54-Q.58), the instrument has been proven valid by expert and its reliability examined by "Cronbach Alpha". LO and KM questionnaires were rated on a five-point Likert-type scale (Karkoulian et al., 2013). To test the hypotheses, the survey was administered between October and November 2013. An information sheet was provided for participants to explain the objective and process the current study prior to data collection. The overall response rate was 92.2 per cent.

Software and computer industry in Iran is one of the most important and developed sectors. This sector was chosen as it seems to have a more updated knowledge level, oriented to solving specific customer problems, and relies on tacit knowledge and practical skills. All surveyed companies had no established programs or formal methods of KM, but rather relied on spontaneous KM processes by individuals (Karkoulian et al., 2013). As we said before "Cronbach Alpha" were used for determining questionnaires' reliability. Reliability scores of KA, KS, and KU were 0.77, 0.80 and 0.72. Also, LO variables indicated "Cronbach Alpha" reliability scores for Continuous Learning (0.77), Dialogue and Inquiry (0.74), Team Learning (0.76), Embedded systems (0.71), Empowerment (0.74), System Connections (0.72), and Strategic Leadership (0.84). Each of these was well above the recommended value of .70 to indicate reliability. The demographic results are presented in Table 1.

3. Findings

Statistical analysis was carried out using Pearson Correlation Coefficient where the significance level was set at 0.05. According to the research findings, there was the relationship between the variables of our interest (Table 1).

Table 1
Pearson correlation matrix

	CL	DL	TL	ES	E	SC	SL	KA	KS	KU
CL	1	0.605	0.716	0.739	0.660	0.759	0.676	0.668	0.714	0.634
DL		1	0.691	0.663	0.571	0.735	0.693	0.564	0.637	0.628
TL			1	0.763	0.590	0.735	0.694	0.551	0.662	0.704
ES				1	0.673	0.736	0.698	0.552	0.671	0.723
E					1	0.636	0.584	0.435	0.559	0.619
SC						1	0.720	0.554	0.720	0.768
SL							1	0.473	0.676	0.719
KA								1	0.505	0.560
KS									1	0.618
KU										1

Note: n= 355; * Significance level: 0.05 (two-tailed)

The regression equations

The following regression equations are the result of assigning KM processes as the dependent variables and the LO dimensions as the independent variables.

- Hypothesis number 1: KA is in association with variables of LO (Table 2)

$$\text{Knowledge Acquisition} = 0.931 + 0.424 \text{ Continuous Learning}$$

The independent variables (Continuous Learning) can describe 46 percent of changes in the dependent variable (Knowledge Acquisition). ($R^2=0.463$; $F=46.351$).

Table 2

Regression equation- knowledge acquisition and learning organization dimensions

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std error	Beta	t	
(Constant)	0.931	0.183		5.095	0.000
Continuous Learning	0.424	0.061	0.531	6.985	0.000
Dialogue and Inquiry	0.029	0.074	0.027	0.392	0.695
Team Learning	0.132	0.079	0.112	1.680	0.094
Embedded Systems	0.101	0.075	0.094	1.338	0.182
Empowerment	-0.066	0.053	-0.068	-1.244	0.214
System Connections	0.037	0.043	0.060	0.860	0.390
Strategic Leadership	-.045	0.054	-0.51	-8.32	0.406

Notes: Dependent variable: Continuous acquisition; *p <0.05 level of significance

- Hypothesis number 2: KS is in association with variables of LO (Table 3)

$$\text{Knowledge Sharing} = 0.223 + 0.682 \text{ Dialogue and Inquiry} + 0.130 \text{ Embedded Systems} + 0.085 \text{ System Connections}$$

The independent variables (Dialogue and Inquiry, Embedded Systems and System Connections) can describe 73 percent of changes in the dependent variable (Knowledge Sharing). ($R^2=0.737$; $F=150.636$).

Table 3

Regression equation- knowledge sharing and learning organization dimensions

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std error	Beta	t	
(Constant)	0.223	0.129		1.736	0.083
Continuous Learning	-0.050	0.043	-0.062	-1.170	0.243
Dialogue and Inquiry	0.682	0.052	0.636	13.036	0.000
Team Learning	0.013	0.055	0.011	0.238	0.812
Embedded Systems	0.130	0.053	0.120	2.452	0.015
Empowerment	0.016	0.037	0.017	0.439	0.661
System Connections	0.085	0.030	0.138	2.810	0.005
Strategic Leadership	0.068	0.038	0.077	1.788	0.075

Notes: Dependent variable: Knowledge sharing; *p <0.05 level of significance

- Hypothesis number 3: KU is in association with variables of LO (Table 4)

$$\text{Knowledge Utilization} = -0.122 + 0.330 \text{ Continuous Learning} + 0.460 \text{ Dialogue and Inquiry} + 0.100 \text{ System Connections} + 0.125 \text{ Strategic Leadership}$$

The independent variables (Continuous Learning, Dialogue and Inquiry, System Connections and Strategic Leadership) can describe 79 percent of changes in the dependent variable (Knowledge Utilization). ($R^2=0.792$; $F=205.673$).

Table 4**Regression equation- knowledge utilization and learning organization dimensions**

	Unstandardized coefficients		Standardized coefficients		
	B	Std error	Beta	t	Sig.*
(Constant)	-0.122	0.146		-0.838	0.402
Continuous Learning	0.330	0.048	0.322	6.825	0.000
Dialogue and Inquiry	0.460	0.059	0.336	7.771	0.000
Team Learning	-0.000	0.063	0.000	-0.001	0.799
Embedded Systems	0.110	0.060	0.080	1.830	0.068
Empowerment	0.017	0.042	0.014	0.400	0.689
System Connections	0.100	0.034	0.128	2.946	0.003
Strategic Leadership	0.125	0.043	0.112	2.931	0.004

Notes: Dependent variable: Knowledge utilization; *p <0.05 level of significance

The following regression equations are the consequence of assigning KM processes as the independent variables, and the LO dimensions as the dependent variables:

- Hypothesis number 4: Continuous Learning is in association with the processes of KM (Table5)

$$\text{Continuous Learning} = -0.206 + 0.361 \text{ Knowledge Acquisition} + 0.612 \text{ Knowledge Utilization}$$

The independent variables (Knowledge Acquisition and Knowledge Utilization) can describe 75 percent of changes in the dependent variable (Continuous Learning). ($R^2=0.755$; $F=392.209$).

Table 5**Regression equation- Continuous Learning and knowledge management**

	Unstandardized coefficients		Standardized coefficients		
	B	Std error	Beta	t	Sig.*
(Constant)	-0.206	0.110		-1.877	0.061
Knowledge Acquisition	0.361	0.038	0.289	9.395	0.000
Knowledge Sharing	0.070	0.055	0.056	1.274	0.203
Knowledge Utilization	0.612	0.045	0.626	13.588	0.000

Notes: Dependent variable: Continuous learning ; *p <0.05 level of significance

- Hypothesis number 5: Dialogue and Inquiry is in association with the processes of KM (Table6)

$$\text{Dialogue and Inquiry} = 0.462 + 0.106 \text{ Knowledge Acquisition} + 0.435 \text{ Knowledge Sharing} + 0.280 \text{ Knowledge Utilization}$$

The independent variables (Knowledge Acquisition, Knowledge Sharing and Knowledge Utilization) can describe 77 percent of changes in the dependent variable (Dialogue and Inquiry). ($R^2=0.772$; $F=430.157$).

Table 6**Regression equation- Dialogue and Inquiry and knowledge management**

	Unstandardized coefficients		Standardized coefficients		
	B	Std error	Beta	t	Sig.*
(Constant)	0.462	0.079		5.826	0.000
Knowledge Acquisition	0.106	0.028	0.113	3.822	0.000
Knowledge Sharing	0.435	0.040	0.467	10.936	0.000
Knowledge Utilization	0.280	0.033	0.383	8.609	0.000

Notes: Dependent variable: Dialogue and Inquiry; *p <0.05 level of significance

- Hypothesis number 6: Team Learning is in association with the processes of KM (Table 7)

$$\text{Team Learning} = 0.997 + 0.180 \text{ Knowledge Acquisition} + 0.194 \text{ Knowledge Sharing} + 0.262 \text{ Knowledge Utilization}$$

The independent variables (Knowledge Acquisition, Knowledge Sharing and Knowledge Utilization) can describe 55 percent of changes in the dependent variable (Team Learning) ($R^2=0.55$; $F=154.$).

Table 7**Regression equation- Team Learning and knowledge management**

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std error	Beta	t	
(Constant)	0.997	0.101		9.905	0.000
Knowledge Acquisition	0.180	0.035	0.212	5.082	0.000
Knowledge Sharing	0.194	0.051	0.231	3.843	0.000
Knowledge Utilization	0.262	0.041	0.396	6.333	0.000

Notes: Dependent variable: Team Learning; *p <0.05 level of significance

- Hypothesis number 7: Embedded Systems are in association with the processes of KM (Table8)

$$\text{Embedded Systems} = 1.035 + 0.185 \text{ Knowledge Acquisition} + 0.197 \text{ Knowledge Sharing} + 0.316 \text{ Knowledge Utilization}$$

The independent variables (Knowledge Acquisition, Knowledge Sharing and Knowledge Utilization) can describe 57 percent of changes in the dependent variable (Embedded Systems). ($R^2=0.569$; $F=167.435$).

Table 8**Regression equation- Embedded Systems and knowledge management**

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std error	Beta	t	
(Constant)	1.035	0.108		9.595	0.000
Knowledge Acquisition	0.185	0.038	0.200	4.896	0.000
Knowledge Sharing	0.197	0.054	0.213	3.630	0.000
Knowledge Utilization	0.316	0.044	0.436	7.132	0.000

Notes: Dependent variable: Embedded Systems; *p <0.05 level of significance

- Hypothesis number 8: Empowerment is in association with the processes of KM (Table9)

$$\text{Empowerment} = 1.381 + 0.123 \text{ Knowledge Acquisition} + 0.146 \text{ Knowledge Sharing} + 0.353 \text{ Knowledge Utilization}$$

The independent variables (Knowledge Acquisition, Knowledge Sharing and Knowledge Utilization) can describe 40 percent of changes in the dependent variable (Empowerment). ($R^2=0.401$; $F=85.147$).

Table 9**Regression equation- Empowerment and knowledge management**

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std. error	Beta	t	
(Constant)	1.381	0.142		9.721	0.000
Knowledge Acquisition	0.123	0.050	0.119	2.476	0.014
Knowledge Sharing	0.146	0.071	0.142	2.051	0.041
Knowledge Utilization	0.353	0.058	0.436	6.054	0.000

Notes: Dependent variable: Empowerment; *p <0.05 level of significance

- Hypothesis number 9: System Connections are in association with the processes of KM (Table 10)

System Connections = $-1.064 + 0.267 \text{ Knowledge Acquisition} + 0.416 \text{ Knowledge Sharing} + 0.597 \text{ Knowledge Utilization}$

The independent variables (Knowledge Acquisition, Knowledge Sharing and Knowledge Utilization) can describe 63 percent of changes in the dependent variable (System Connections) ($R^2=0.634$; $F=219.654$).

Table 10

Regression equation- System Connections and knowledge management

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std error	Beta	t	
(Constant)	-1.064	0.175		-6.065	0.000
Knowledge Acquisition	0.267	0.062	0.163	4.336	0.000
Knowledge Sharing	0.416	0.088	0.256	4.728	0.000
Knowledge Utilization	0.597	0.072	0.467	8.287	0.000

Notes: Dependent variable: System Connections; *p <0.05 level of significance

- Hypothesis number10: Strategic Leadership is in association with the processes of KM (Table11)

Strategic Leadership = $0.230 + 0.098 \text{ Knowledge Acquisition} + 0.291 \text{ Knowledge Sharing} + 0.416 \text{ Knowledge Utilization}$

The independent variables (Knowledge Acquisition, Knowledge Sharing and Knowledge Utilization) can describe 54 percent of changes in the dependent variable (Strategic Leadership). ($R^2=0.545$; $F=152.413$).

Table 9

Regression equation- Strategic Leadership and knowledge management

	Unstandardized coefficients		Standardized coefficients		Sig.*
	B	Std error	Beta	t	
(Constant)	0.230	0.137		1.679	0.094
Knowledge Acquisition	0.098	0.048	0.085	2.027	0.043
Knowledge Sharing	0.291	0.069	0.254	4.216	0.000
Knowledge Utilization	0.416	0.056	0.464	7.381	0.000

Notes: Dependent variable: Strategic Leadership; *p <0.05 level of significance

4. Discussion Conclusion

To explain the findings in this study, Fig. 1 and Fig. 2 summarize all aspects of relationships between KM and LO. Fig. 1 shows the KM processes as the independent factors and LO dimensions as the dependent variables. Fig. 2 shows the LO dimensions as the independent factors and KM processes as the dependent variables. All straight-line arrows point to a significant positive relationship between the variables. The results showed that there is positive relationship between LO dimensions and KM processes. As these figures indicate there are more straight-line arrows in figure 2, suggests that KM enhances LO more than LO enhances KM in software and computer companies in Tehran.

This is in accordance with Karkoulian et al. (2013) study. They empirically concluded that “the two dimensions LO and KM are distinct and that KM enhances LO more than LO enhances KM” in Retail business employees working in organizations in Lebanon.

The results suggest that KM is necessary for establishing a successful LO. KM processes have a positive relationship with LO dimensions and enhance them. This finding is in the same line with previous studies (Aggestam, 2006; Loermans, 2002; Jamalzadeh, 2012; Nodehi et al., 2013; Karkoulia et al., 2013). All of them exhibited a strong relationship between These parameters, and the process to get a LO must include KM, furthermore, LO and KM enable organizations to become successful in the ever-changing business environment. The importance of this study empirically confirms relationship between KM and LO in software and computer companies in Tehran and forms the foundation for further study in this field.

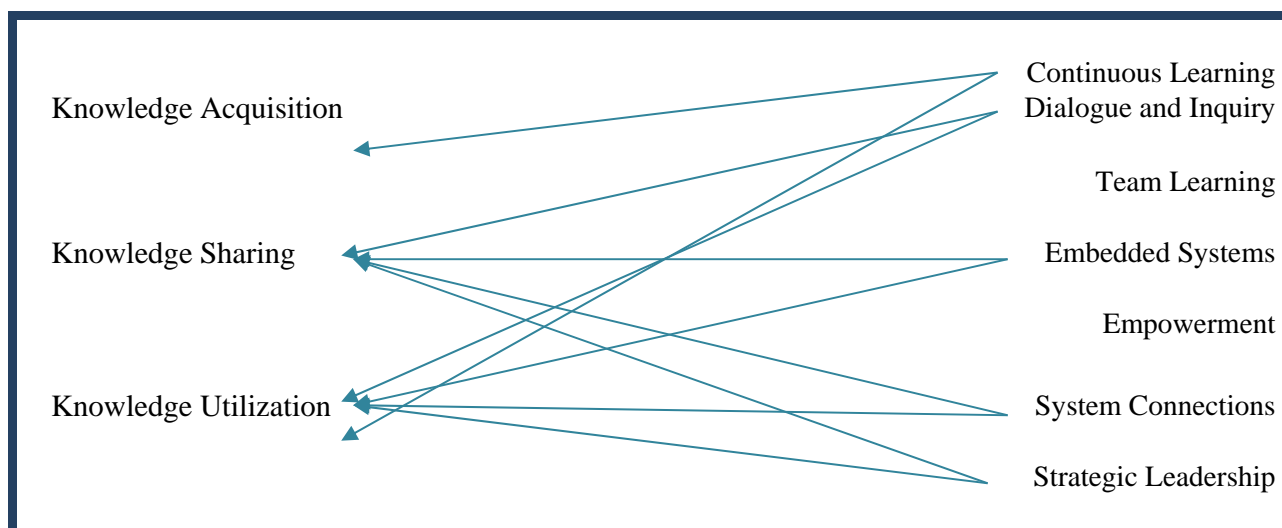


Fig.1. Summary of the results of H₁, H₂ and H₃

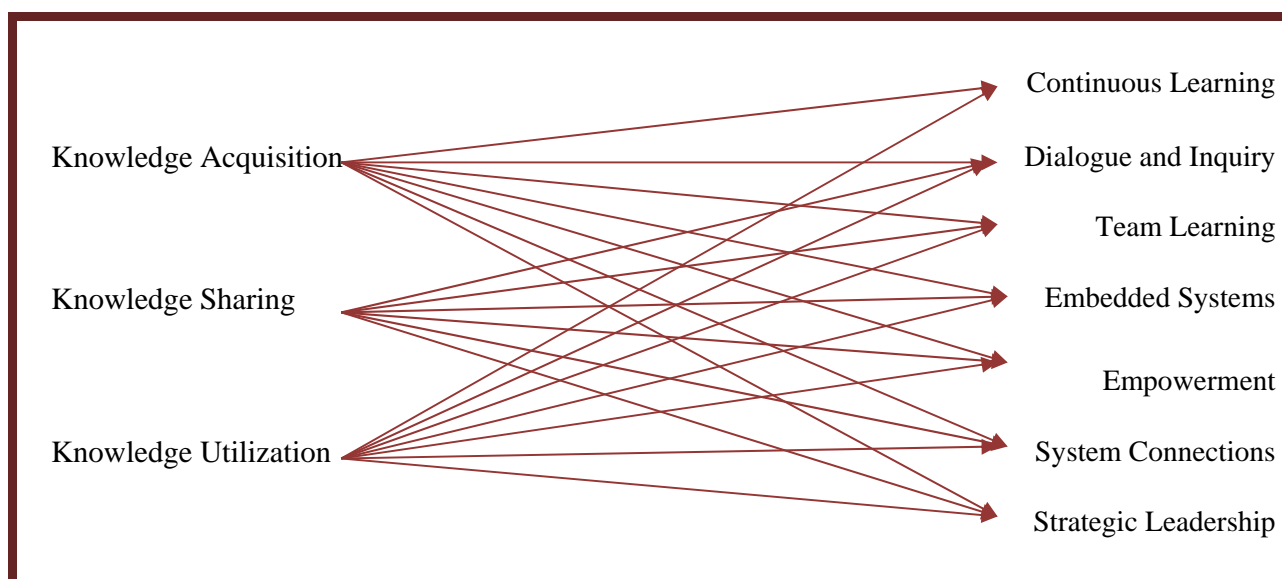


Fig. 2. Summary of the results of H₄, H₅, H₆, H₇, H₈, H₉ and H₁₀

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