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The Empirical Study of the Influence of Organizational learning on Knowledge Management- Take Taiwan Medical Institutions for example

[1]Chien-Chang Yang, [2]Carol Y.Y. Lin, [2]Chia-Jung Chung,

[1]Human Resource Director Far Eastern Memorial Hospital #21, Sec. 2, Nan-Ya South Road Taipei 220, Taiwan

[2]Department of Business Administration National Chengchi Universit #64, Sec. 2, Chi-Nan Road, Taipei 116, Taiwan

[3]Administrative Director Golden Hospital #12-2, Minsheng E. Rd., Pingtung City, Pingtung County 900, Taiwan

Abstract: *Continuously Strengthening The Organization Competitiveness Through Learning Has Become An important development strategy during the era of knowledge economy, even to medical institutions, whose human resource is extremely important capital.*

The objective of this study is to find the linkage between organizational learning (shared vision, personal mastery, mental model improvement, team learning, and systematical thinking) and knowledge management (knowledge acquirement, knowledge innovation, knowledge accumulation, knowledge sharing, and knowledge application), in order to provide managers to make good use of organizational learning to build knowledge management, and eventually to strengthen organizational competitiveness. Data from 182 hospitals in Taiwan, with a response rate of 33.1%, confirm the positive correlation between organizational learning and knowledge management.

Keywords: *Medical institution, Organization learning, Knowledge management, Organizational Competitiveness, HRM*

Research motivation and objective:

Medical institution is one of the most complicated society institutions. It has several responsibilities for employees to serve patients in both physical and mental. Therefore, the hospitals need not only the general management, but also the employees who can provide high quality of service to patients with sympathy.

The only way for medical institutions to develop sustainability in fiercely competitive medical environment is to enhance the service quality and operation performance so that they can build the competitive advantages. At the same time,

establishing better learning environment in organization and promoting activities related to knowledge management(KM) will become one of the critical elements of sustainable operation for medical institutions to enrich human capital.

"Employee" is the most valuable assets in an organization. In medical institutions, the numbers and the quality of employees are related to not only the quality of medical services, but also the development of hospitals. Therefore, in order to face the rapid changes in the medical competition, the hospitals should build the learning environment by introducing knowledge management to improve the services.

Nowadays, the changes are fierce and rapid. The only way to survive in this kind of environment is to keep learning. In knowledge economy, intangible intellectual assets become the key competitive advantages, acquiring by organizational learning system. When facing the new economy era which based on knowledge, two of the most important things are knowledge management and innovation capacity. Moreover, how to accumulate the professional knowledge and then make it become the organization core value has become the focus of hospital development strategy. By validly enhancing the value of learning, the innovation level and performance can be improved.

This study focuses on the medical institutions as the object to research in the effects of organization learning(OL) and KM. The objective is to analyze the relation between OL and knowledge management, and then to provide the feasible suggestion to managers of hospitals based on the findings and results. By doing so, the medical institutions can enhance human capital through knowledge management.

Literature Review:

When actual results differ from expectations, organizations automatically begin to monitor and correct this difference (Argyris & Schon, 1978). This procedure can be adopted to increase knowledge regarding the relationship between organizational actions and outcomes, and to understand the influence of the environment on this relationship (Duncan & Weiss, 1979). When members of an organization experience similar problems, they can solve these problems by learning together, thus developing an organizational learning system (Morgan & Ramirez, 1983). Learning is an innate human behavior that enables humans to adapt to the environment (Hergenhahn, 1988); personal learning can enhance OL, indicating that personal learning is the basis of OL (Senge, 1990). Learning is a continual process, without which organizations fail, manifesting the ideas that knowledge is power and people are never too old to learn (Wick & León, 1995). From the aforementioned perspective, OL is considered to be established by enterprises based on corporate culture to improve manpower skills and adjust and develop organizational efficiency by using activity knowledge and routines (Dodgeson, 1993). OL is the process of developing and shaping a knowledge foundation (Shrivastava, 1983), and a procedure for improving action procedures by increasing knowledge and understanding (Fiol & Lyles, 1985). Organizations can use OL to obtain knowledge and new perspectives, as well as adjust behaviors and

actions (Stata, 1989). To enhance organizations' ability to act efficiently, a framework can be established that connects personal learning and OL through mental models to accumulate the effects of personal learning within the organization (Kim, 1993). OL can be used to obtain, maintain, or change individual perceptions through the collective behavior of a group by expressing and disseminating artificial instruments and media (Cook & Yanow, 1993). In addition, OL can maintain or improve an organization's operational performance by enhancing organizational abilities and processes (Nevis, Dibella, & Gould, 1995). Therefore, OL involves changes in cognition, behavioral potential, or actual behavior (Tsang, 1997). Variables such as technological environment and organizational structure, technological environment and human resources, and organizational design and human resources should be considered to demonstrate the effectiveness of OL; these variables illustrate that enterprises with superior learning culture are equipped to face new challenges (Vincent Cho, 2007).

Enterprises must constantly achieve breakthroughs and cultivate new, innovative, and open-minded ideas to strive to realize common goals and continually develop methods for learning together (Senge, 1990). Therefore, a learning organization is the application of organizational development and OL, promoting a climate and process that facilitate learning (Garratt, 1990); it is also the ability of an organization to develop, obtain, and transfer knowledge, enabling the organization to correct behaviors to respond to new knowledge and insight (Garvin, 1993). A learning organization can transform the abilities of learning, adaptation, and change into organizational culture; the established values, policies, practices, systems, and structures can support employees' learning (Bennett & O'Brien, 1994). Furthermore, by rapidly creating knowledge and developing the ability to succeed, a learning organization can achieve the goal of constant improvement (Wick & Leon, 1995). An organization capable of effective and collective learning can facilitate the common success of the organization and its members (Marquardt, 1996).

The 21st century marked the beginning of the era of knowledge economy growth. In the concepts and methods of KM, knowledge replaces traditional factors of production as the most crucial source of competitiveness in an organization (Drucker, 1993). Whether members can freely obtain knowledge and further innovate depends on the organization's KM abilities (Nonaka & Konno, 1998). To progress, an organization must constantly invest energy derived from knowledge. KM is interpreted by various scholars as follows. Kogut and Zander (1992) regarded KM as the ability to integrate internal and external learning to acquire new skills. Nonaka and Takeuchi (1995) stated that KM was an organization's implementation of knowledge socialization, externalization, combination, and internalization in the knowledge spiral model to create knowledge competence. According to Grant (1996), KM denotes a situation in which organizations obtain and employ the ability of KM activities to execute organizational tasks, integrate organizational knowledge resources, and apply them to productive tasks for creating product value, with the aim of maintaining competitive advantage.

Petrash (1996) defined KM as providing the right knowledge to the right person at the right time for that person to perform the optimal decisions. Marshall (1997) viewed KM as an organization's systematic, explicit, and exhaustive exploration and use of knowledge assets to enhance knowledge-related job performance within the organization to maximize rewards. O'Dell and Grayson (1998) regarded KM as providing timely and accurate knowledge to members who required such knowledge to assist them in responding appropriately to situations encountered in the workplace, enhancing the continual process of organizational performance. This process involves knowledge creation, confirmation, collection, classification, storage, sharing, access, use, improvement, and ultimately, replacement. Gold, Malhotra, & Segars (2001) considered KM a prerequisite for implementing KM activities. Bose (2003) defined KM as the ability to employ previous knowledge of an organization and learn continually to create new knowledge. For Croteau and Li (2003), KM denoted the capability of an organization to obtain, manage, and convey information related to customers, products, and services to accelerate customer response and decision-making rates. To satisfy customer demands by enhancing products, productivity, and efficiency, organizations must act more rapidly than do their rivals, learn continually, accumulate knowledge, and apply that knowledge to production and manufacturing processes. Therefore, organizations must emphasize topics regarding learning and KM (Porter, 1980). Strategic learning and knowledge strategies are closely related, confirming the importance of OL and KM (Bierly, Kessler, & Christensen, 2000).

Research Methods:

I: Research Framework:

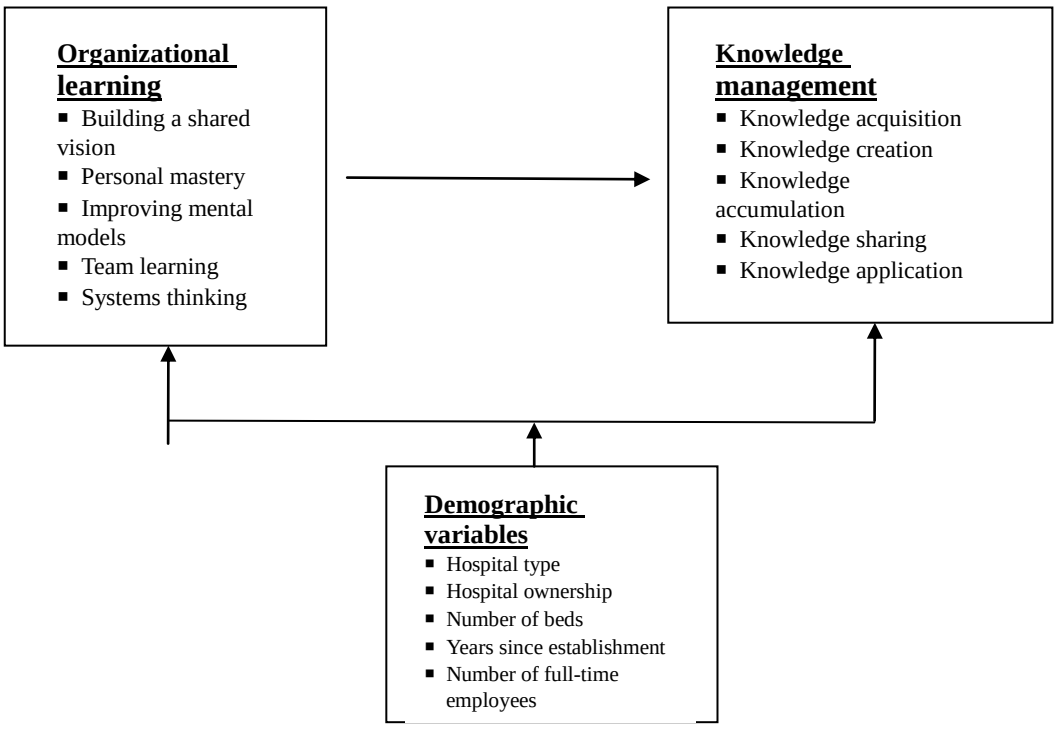

Figure 1. Research framework

Research Hypotheses:

H1: Demographic variables differ significantly at the various cognitive levels of OL.

H2: Demographic variables differ significantly at the various cognitive levels of KM.

H3: OL is significantly and positively related to KM.

H4: OL significantly and positively influences KM.

Operational Definitions and Measurements of Research Variables:

The questionnaire adopted in this study consisted of three major sections. The three sections were OL, KM, and demographic variables. Except for demographic variables, the other variables were measured using a 5-point Likert scale. Respondents selected the answers for each measurement variable on the scale based on subjective cognition, and the points obtained for each variable were used to calculate the score for evaluation.

A. Operational definitions:

The independent variable of this study was OL, and the dependent variable was KM.

OL involved five dimensions: building a shared vision, personal mastery, improving mental models, team learning, and systems thinking. The operational definitions of the dimensions and the main content of the core elements proposed by Senge (1990) are as follows:

1. Building a shared vision: A shared vision denotes the meanings or images commonly shared by members of an organization. The establishment of shared vision is a bottom-up process formulated by members through mutual interaction and participation, forming consensus level-by-level and cultivating members' long-term team commitment. A shared vision enables an organization to cultivate members' active and sincere devotion and engagement, rather than passive compliance, causing members to feel a sense of unity and strive for a shared goal.
2. Personal mastery: Personal mastery denotes the extension of personal capability for achieving personal goals. It requires objective self-observation, an active attitude, and motivation for pursuing breakthroughs and excellence. Personal mastery is the spiritual foundation of OL, enhancing the willingness and ability of personal learning and further facilitating organizational growth and development.
3. Improving mental models: Mental models indicate the innate pictures, presumptions, and stories of a person's mind; they determine individual perceptions of the world and related actions. Improving mental models requires constant open examination of inner thoughts, respect for participation, and acceptance of disagreement; thus, established thinking models can be altered and biases caused by over inference can be prevented.
4. Team learning: In this process, members of an organization state their presumptions, reason deeply, and discuss and exchange thoughts to learn cooperatively. By using collective wisdom, the team acts together to achieve organizational goals.
5. Systems thinking: Systems thinking is the axis of a learning organization; it enables an organization to analyze complex problems and incidents comprehensively, eliminate unfounded perceptions and fragmented thinking, adopt a holistic perspective, and identify the structures, elements, and interactions among these structures and elements that cause problems and incidents, to further increase the organization's learning capacity.

KM includes the five dimensions of knowledge acquisition, knowledge creation, knowledge accumulation, knowledge sharing, and knowledge application. The operational definitions are as follows:

1. Knowledge acquisition: An organization and its members are adept at learning from previous

experiences, mistakes, colleagues or similar professionals, customers, suppliers, strategic alliance partners, competitors, other industry leaders, and secondary data. Meanwhile, members are willing to actively collect and apply information when the organization provides necessary assistance to enhance the efficiency of knowledge acquisition. Furthermore, the introduction of crucial knowledge is guaranteed by the organization's possession of favorable systems.

2. Knowledge creation: Leaders and top managers create and strengthen learning opportunities to focus organizational emphasis on the cultivation and development of core competitiveness, professional competence, and creativity, to solve problems and teach employees to learn increasingly effectively. Organizational values should involve supporting continual learning, providing various resources and learning methods, technologically supporting various learning activities, enhancing learning efficiency, and promising to offer all members the opportunity for continual learning and complete development. Meanwhile, members are willing to devote themselves to removing obstacles at work, assisting the company in solving problems, thinking systematically, and striving for continuous innovation.
3. Knowledge accumulation: Organizations possess favorable systems for ensuring the storage and conveyance of crucial knowledge.
4. Knowledge sharing: Organizations are willing to share technological competencies and knowledge with customers, suppliers, strategic alliance partners, and the communities where they are located.
5. Knowledge application: Members can actively and opportunely convey newly discovered and acquired information to others and apply this information to their work.

B. Questionnaire design and measurement:

The OL scale consisted of 21 items in total, measured using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The items and the data source are compiled in Table 3-2.

Measurement was based on the dimensions of the KM system proposed by Marquardt (1996), with a total of 51 items measured using a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

IV. The object of study:

The research targets of this study comprised approximately 550 hospitals in Taiwan. Each hospital was sent a questionnaire; thus, a total of 550 questionnaires were mailed, and 182 valid responses were received, indicating a valid response rate of 33.1%.

Data analysis:

A. Descriptive Statistics:

We conducted basic statistical analyses of frequency distribution and percentage of the demographics information to understand the structure of the sample data.

B. Inferential Statistics:

1. Analysis of variance: One-way analysis of variance was used to determine differences in OL, KM, and innovative ability among the sampled hospitals.

2. Correlation analysis: Pearson product-moment correlation analysis was performed to determine the level of correlation between OL and KM variables.

3. Regression analysis: This study conducted

regression analysis to ascertain the level of influence OL exerted on the various dimensions of KM.

Research findings:

In this study, the demographic variables were statistically analyzed based on the valid questionnaires. The majority of hospitals were district (teaching) hospitals (57.1%), corporation owned (private; 50.5%), had been established for 21−40 years (35.2%), contained under 250 beds (56.1%), and employed less than 400 full-time staff members (55.5%; Table 1).

Table 1. Analysis of demographic variables (n = 182)

Item		Number of hospitals	Percentage (%)	Accumulative percentage (%)
Hospital type	Medical center	16	8.8	8.8
	Regional hospital	62	34.1	42.9
	District (teaching) hospital	104	57.1	100.0
Hospital ownership	Governmental, municipal, military, or veterans hospital	25	13.7	13.7
	Religious hospital	11	6.0	19.8
	Foundation hospital	54	29.7	49.5
	Corporation (private) hospital	92	50.5	100.0
Years since establishment	Under 20	51	28.0	28.0
	21−40	64	35.2	63.2
	41−60	48	26.4	89.6
	Above 460	19	10.4	100.0
Number of beds	Under 250	102	56.0	56.0
	251−500	23	12.6	68.7
	501−750	29	15.9	84.6
	Above 751	28	15.4	100.0
Number of full-time employees	Under 400	101	55.5	55.5
	401−800	18	9.9	65.4
	801−1200	31	17.0	82.4
	Above 1201	32	17.6	100.0

Analysis of Variance:

This study investigated the relationship between demographic variables and awareness of OL and KM at the sampled hospitals. Dimensions that exhibited significant differences were then analyzed using a Scheffe's post hoc test. Statistical analytical results indicated that years since establishment, number of beds, and number of full-time employees did not exhibit significant influence on the five dimensions of OL (i.e., building a shared vision, personal mastery, improving mental models, team

learning, and systems thinking) or the five dimensions of KM (i.e., knowledge acquisition, knowledge creation, knowledge accumulation, knowledge sharing, knowledge application). Hospital type significantly affected awareness of the five dimensions of KM. In addition, after conducting a Scheffe's post hoc test, we determined that hospital type significantly affected knowledge acquisition (F = 3.528; p < .05), knowledge creation (F = 4.961; p < .01), knowledge accumulation (F = 6.778; p < .001), knowledge sharing (F = 5.992; p < .01), and knowledge application (F = 12.174; p < .001); for all dimensions, medical centers scored higher than regional and district hospitals did. The results of the Scheffe's post hoc test also indicated that hospital ownership significantly influenced knowledge sharing (F = 3.369; p < .05) and knowledge application (F = 4.548; p < .01); governmental, municipal, military, and veterans hospitals demonstrated higher awareness scores than foundation hospitals did for these two dimensions (Table 2).

Table 2. One-way analysis of variance of the influence of demographic variables on OL and KM dimension

	Hospital type		Hospital ownership		Years since establishment		Number of beds		Number of full-time employees	
		Test	*F* value	Test	*F* value	Test	*F* value	Test	*F* value	Test
Building a shared vision	.880		2.487		1.306		.351		2.183	
Personal mastery	.357		.775		.0182		.431		.908	
Improving mental models	.139		.719		.581		.803		1.972	
Team learning	1.054		.027		.667		.298		.640	
Systems thinking	1.329		.335		1.296		.190		.474	
Knowledge acquisition	3.258*	1 > 2	2.263		.897		2.014		.986	
Knowledge creation	4.961**	1 > 2; 1 > 3	3.031		.598		.539		.169	
Knowledge accumulation	6.778***	1 > 2; 1 > 3	2.203		.259		1.354		.053	
Knowledge	5.992**	1 > 2; 1	3.369*	1 > 3	.827		1.681		.673	

sharing		> 3								
Knowledge application	12.174***	1 > 2; 1 > 3	4.548**	1 > 3	1.364		2.513		.964	

a. Hospital type: (1) Medical center; (2) Regional hospital; (3) District (teaching) hospital

b. Hospital ownership: (1) Governmental, municipal, military, or veterans hospital; (2) Religious hospital; (3) Foundation hospital; (4) Corporation (private) hospital

c. Years since establishment: (1) ≤ 20 years; (2) 21−40 years; (3) 41−60 years; (4) ≥ 60 years

d. Number of beds: (1) ≤ 250 beds; (2) 251−500 beds; (3) 501−750 beds; (4) ≥ 751 beds

e. Number of full-time employees: (1) ≤ 400 people; (2) 401−800 people; (3) 801−1200 people; (4) ≥ 1201 people

f. Significance level: *p < .05: **p < .01; ***p < .001

Pearson product-moment correlation analysis to test the correlations between the dimensions of OL and KM. The results indicated that all variables were significantly positively correlated. The correlation coefficients between building a shared vision and the other dimensions ranged from 0.169 to 0.580; for personal mastery, the range was 0.309–0.668; for improving mental models, 0.177–0.447; for team learning, 0.354–0.542; for systems thinking, 0.235–0.357; for knowledge acquisition, 0.597–0.684; for knowledge creation, 0.658–0.707; for knowledge accumulation, 0.711–0.713; for knowledge sharing other dimensions, 0.883 (Table 3). These results demonstrated that superior OL enhanced KM competence.

Table 3. Pearson product-moment correlation analysis of OL and KM (n = 182)

	Building a shared vision	Personal mastery	Improving mental models	Team learning	Systems thinking	Knowledge acquisition	Knowledge creation	Knowledge accumulation	Knowledge sharing	Knowledge application
Building a shared vision	1									
Personal mastery	.550***	1								
Improving mental	.379***	.668***	1							

models										
Team learning	.300***	.477***	.316***	1						
Systems thinking	.169*	.309***	.177*	.357***	1					
Knowledge acquisition	.403***	.451***	.362***	.354***	.235***	1				
Knowledge creation	.580***	.618***	.447***	.542***	.336***	.684***	1			
Knowledge accumulation	.395***	.539***	.353***	.519***	.305***	.597***	.693***	1		
Knowledge sharing	.482***	.517***	.344***	.437***	.357***	.591***	.658***	.711***	1	
Knowledge application	.507***	.513***	.340***	.478***	.330***	.638***	.707***	.713***	.883***	1

Significant level: *p < .05; **p < .01; ***p < .001

Multiple Regression Analysis:

This study adopted multiple regression analysis to investigate the influence of OL on KM. The five dimensions of OL were specified as independent variables. The five dimensions of KM were adopted as dependent variables. The research results indicated that OL significantly influenced KM. The results are **explained as follows:**

A. Building a shared vision and team learning positively and significantly influenced knowledge acquisition (Table 4).

In this regression model, the adjusted R^2 was 0.250.

Every addition of 1 point to the average values of building a shared vision and team learning increased that of knowledge acquisition by 0.288 and 0.166 points, respectively

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Table 4. Regression analysis of the influences of the OL dimensions on knowledge acquisition (n = 182)

Explanatory variable	b coefficient	Standardized regression coefficient	*t* value
Constant	.497		1.127
Building a shared vision	.288	.213	2.755**
Team learning	.166	.150	1.979*
R^2	.271		
Adjusted R^2	.250		
F value (degree of freedom = 2,179)	13.077***		

Significance level: *p < .05: **p < .01; ***p < .001

B. Building a shared vision, personal mastery, and team learning positively and significantly influenced knowledge creation (Table 5).

In this regression model, the adjusted R^2 was 0.532.

Every addition of 1 point to the average values of building a shared vision, personal mastery, and team learning increased that of knowledge creation by 0.381, 0.231, and 0.264 points, respectively.

Table 5. Regression analysis of the influences of the OL dimensions on knowledge creation (n = 182)

Explanatory variable	b coefficient	Standardized regression coefficien	*t* value
Constant	.287		.0959
Building a shared vision	.381	.328	5.379***
Personal mastery	.231	.232	2.863**
Team learning	.264	.278	4.650***
R^2	.545		
Adjusted R^2	.532		
F value (degree of freedom = 3,178)	42.207***		

Significance level: *p < .05: **p < .01; ***p < .001

C. Personal mastery and team learning positively and significantly influenced knowledge accumulation (Table 6).

In this regression model, the adjusted R^2 was

0.378.

Every addition of 1 point to the average values of personal mastery and team learning increased that of knowledge accumulation by 0.307 and 0.301 points, respectively

Table 6. Regression analysis of the influences of the OL dimensions on knowledge accumulation (n = 182)

Explanatory variable	b coefficient	Standardized regression coefficient	*t* value
Constant	.649		1.844
Personal mastery	.307	.302	3.234***
Team learning	.301	.311	4.503***
R^2	.395		
Adjusted R^2	.378		
F value (degree of freedom = 2,179)	23.011***		

Significance level: *p < .05: **p < .01; ***p < .001

D. Building a shared vision, personal mastery, team learning, and systems thinking positively and significantly influenced knowledge sharing (Table 7).

In this regression model, the adjusted R^2 was 0.374.

Every addition of 1 point to the average values of building a shared vision, personal mastery, team learning, and systems thinking increased that of knowledge sharing by 0.363, 0.253, 0.202, and 0.211 points, respectively.

Table 7. Regression analysis of the influences of the OL dimensions on knowledge sharing (n = 182)

Explanatory variable	b coefficient	Standardized regression coefficient	*t* value
Constant	.060		.153
Building a shared vision	.363	.274	3.879***
Personal mastery	.253	.222	2.366*
Team learning	.202	.186	2.682***
Systems thinking	.211	.175	2.736***
R^2	0.391		
Adjusted R^2	0.374		
F value (degree of freedom = 4,177)	22.610***		

Significance level: *p < .05: **p < .01; ***p < .001

E. Building a shared vision, personal mastery, team learning, and systems thinking positively and significantly influenced knowledge application (Table 8).

In this regression model, the adjusted R^2 was 0.397

Every addition of 1 point to the average values of building a shared vision, personal master, team learning, and systems thinking increased that of knowledge application by 0.391, 0.199, 0.259, and 0.151 points, respectively.

Table 8. Regression analysis of the influences of the OL dimensions on knowledge application (n = 182)

Explanatory variable	b coefficient	Standardized regression coefficient	*t* value
Constant	.016		.042
Building a shared vision	.391	.310	4.471***
Personal mastery	.199	.184	1.998*
Team learning	.259	.251	3.700***
Systems thinking	.151	.131	2.095*
R^2	0.414		
Adjusted R^2	0.397		
F value (degree of freedom = 4,177)	24.843***		

Significance level: *p < .05: **p < .01; ***p < .001

Discussion:

In this study, we conducted difference analysis on the awareness of OL and KM based on demographic variables. According to the results, years since establishment, number of beds, and number of full-time employees did not significantly affect the five dimensions of OL (i.e., building a shared vision, personal mastery, improving mental models, team learning, and systems thinking) or the five dimensions of KM (i.e., knowledge acquisition, knowledge creation, knowledge accumulation, knowledge sharing, and knowledge application). These results indicated that in the current era of knowledge economy growth, a hospital's time since establishment, number of beds, and number of employees did not considerably influence awareness of OL and KM. This situation was likely caused by the specific requirements of hospital evaluations regarding employee training systems and promotion and by the increasingly prevalent Internet use, which have facilitated diverse channels for rapid transmission of information, as well as extensive sharing and discussion. This can effectively achieve the acquisition, creation, accumulation, sharing, and application of knowledge. The results of Scheffe's post hoc test indicated that hospital type significantly affected awareness of knowledge acquisition ($F = 3.528$; $p < 0.05$), knowledge creation ($F = 4.961$; $p < 0.01$),

knowledge accumulation ($F = 6.778$; $p < 0.001$), knowledge sharing ($F = 5.992$; $p < 0.01$), and knowledge application ($F = 12.174$; $p < .001$). Furthermore, all medical centers in this study exhibited higher levels of awareness than regional and district hospitals did. Generally, medical institutes possess three major goals: providing medical services, facilitating clinical teaching, and conducting medical research. However, considering the aims, missions, and operational objectives of these establishments, various hospitals play dissimilar roles and develop differently. Particularly, medical centers are the "last line of defense" for patients, and are mostly affiliated with university colleges of medicine; therefore, these institutions provide the three aspects of medical services, teaching, and research. To effectively perform these functions and achieve optimal effectiveness, level of KM promotion is a critical influential factor. Medical institutes must value and implement strategic knowledge and definitions required by medical institutes, external obtainment, internal creation, and the KM process for knowledge accumulation, sharing, and application to successfully and effectively accomplish the goals of medical services, teaching, and research. These requirements correspond with the results of this study, which indicated that medical centers exhibited higher levels of KM awareness than regional and district hospitals did. Hospital ownership exhibited a significant effect on knowledge sharing ($F = 3.369$; $p < 0.05$) and knowledge application ($F = 4.548$; $p < 0.01$). Moreover, governmental, municipal, military, and veterans hospitals demonstrated higher levels of awareness than foundation hospitals did. Because of the aforementioned attributes and culture of governmental, municipal, military, and veterans hospitals, we inferred that these hospitals have undergone large-scale transformations and successfully accomplished the stated objectives through knowledge sharing and application in response to the fierce competition of the current medical environment and the implementation of governmental public budgets and preventive health care.

This study conducted Pearson product-moment correlation analysis to determine the correlation between each dimension of OL and KM. The results indicated that the five dimensions of OL and the five dimensions of KM were significantly and positively correlated. The highest levels of correlation occurred between building a shared vision and knowledge creation ($r = 0.580$), personal mastery and knowledge creation ($r = 0.618$), improving mental models and knowledge creation ($r = 0.447$), team learning and knowledge creation ($r = 0.542$), and systems thinking and knowledge sharing ($r = 0.357$). These results indicated that medical institutes should actively and effectively encourage hospitals and employees to formulate shared visions. Moreover, in addition to encouraging employees not to be satisfied with routine work and status quo, medical hospitals should actively advocate the pursuit of personal mastery. Particularly, employees should be engaged in communication and discussions to alter established personal ideas, rather than blindly following conventions and following personal opinions. Above all, hospitals and employees

should practice the spirit of teamwork and strengthen external abilities to create knowledge through favorable interactions and team learning. Furthermore, systems thinking can enable hospitals to become organizations capable of learning by assisting organizations in tackling complex problems or considering incidents from a comprehensive perspective. This mechanism can effectively enhance the benefits of organizational knowledge sharing.

Multiple regression analysis was performed to investigate the influence of OL on KM. The analytical results indicated that building a shared vision exerted the highest level of influence on knowledge acquisition, knowledge creation, knowledge sharing, and knowledge application, demonstrating the value of consensus and commitment formed through members' interactions and participation in the organization for medical institutes to effectively promote KM activities. By encouraging employees to improve individual capabilities and actively pursue and accomplish personal objectives, organizations can enhance personal willingness and ability to learn and further facilitate knowledge accumulation.

Conclusion and future study:

According to the findings and analysis, there are mutual interactions between organization learning and knowledge management in medical institutions, presenting that the higher the level of organization learning, the better the effectiveness of knowledge management. For example, building shared vision has impact on knowledge acquirement, innovation, sharing, and application; improving personal mastery has impact on knowledge management, accumulation, sharing, and application; implementing team learning has impact on knowledge acquirement, management, accumulation, sharing, and application; practicing systematical thinking has impact on knowledge sharing.

Therefore, in order to enhance employees' knowledge, skills, and experiences, the hospitals should build the learning environment in organization and knowledge management activities, encourage employees to pursue personal mastery, completely authorize to raise morale, and then form better learning cycle. By doing so, the medical institutions will achieve organization innovation and performance leverage, and then develop sustainably competitive advantages.

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