

Building Effective Health Learning Organizational Culture: A National Study

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Research

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Abstract

Background

Hospitals and healthcare institutions should be observant of the ever changing environment and be adaptive to learning practices. By adopting the steps and other components of organizational learning, hospitals and healthcare institutions can convert themselves into learning organizations and ultimately strengthen the overall healthcare system of the country. The study aimed to explore the influence of organizational learning dimensions on learning organization culture within a healthcare context.

Method

In 2019, a cross-sectional study was performed and data were collected from 1131 respondents from four categories of public learning hospitals in Saudi Arabia. A Structural equation modeling (SEM) was applied through partial least square (PLS) to estimate the relationships between the various variables.

Results

Organizational learning including system connections ($\beta = 0.227$, $P < 0.01$) and embedded systems ($\beta = 0.186$, $P < 0.01$) have major significant relationships in building effective learning organization culture, followed by continuous learning ($\beta = 0.142$, $P < 0.01$) and empowerment ($\beta = 0.130$, $P < 0.01$). Finally, team learning and collaboration ($\beta = 0.106$, $P < 0.01$) and dialogues and inquiry ($\beta = 0.087$, $P < 0.01$) have the lowest effect on building health organization culture.

Conclusion

The findings concluded that intrinsic factors like learning, dialogue and inquiry, and teamwork, have an essential role in this study, yet the most central factors toward the development of learning organization culture were extrinsic factors including system connections and embedded systems. In other words, until knowledge-sharing is embedded in health organizational systems, organizations may not maintain a high level of learning.

Background

Having a primary role in restoring and maintaining health, healthcare systems largely depend on organizations, people, and their competencies [1]. Particularly, performance of healthcare systems varies based on the structure, process and expected outcomes [2]. On a micro level, healthcare organizations such as hospitals and medical institutions remain at the nucleus of the healthcare system regardless of the type of funding and structure and the provided services to the general population [1]. The key indicator of hospital performance is the safe and consistent services provided to patients by medical and non-medical staff [3]. Therefore, coordination and communication within and between the teams is a must to develop cohesive functioning essential to provide quality medical care [4]. Healthcare organizations are always bound to modify their functioning due to sudden changes in prevalence of

diseases and pandemics without compromising the quality of services [5]. Acquiring advanced technologies and creation and utilization of contemporary knowledge can help healthcare organizations to perform well without hindrance.

Learning organization is considered as a cumulative phenomenon that helps in personal and professional growth of individuals and teams and develops collective learning in an organization that leads to enhance individual as well as organizational performance [6]. Indeed, learning organization improves the efficiency and effectiveness of an organization through shared knowledge [7]. An organization that practices continuous learning of employees, bound to transform itself where employees continuously create, acquire, and share knowledge is called learning organization [8]. Learning organization and organizational learning has been used interchangeably in previous literature. However, there is a thin line which differentiates the two. According to Preskill and Torres learning organization focuses on characteristics, principles, and systems whereas organizational learning emphasizes on the process of learning [9]. However, in each level, individuals are the main agents that involve in learning organization or organizational learning and bring substantial changes. Ultimately, organizational learning is a process through which an organization develops new knowledge and understands from routine experiences of the employees. Organizational learning has the potential to change the behavior of employees and improve the organizational capability on policy and practical levels [10].

Learning organization is the first step towards obtaining dynamic knowledge that brings change among employees, whereas, in the context of a learning organization, knowledge is acquired and shared among employees via a system that develops capacity to improve performance [10]. Generally, learning organization is influenced by contextual factors such as culture. An organization that regards learning as absolutely critical for its business success is considered as equipped with learning culture [11]. Organizational culture is the characteristic of an organization which manifests the sharing of common values and beliefs among its employees [12]. Thus, learning organization culture develops skills within an organization to create, acquire, and transfer knowledge and enhance positive behavior to follow new medical practice or guidelines [13].

As changing environment forces every healthcare organization to enhance quality and safety of patients, practice of learning organization will improve the knowledge and skills of physicians and guide them to find better ways to work in coordination [14]. Collective learning among small groups or teams could lead to better performance of healthcare organization through shared knowledge and better understanding among teams [15]. In the context of healthcare services, members of the teams must convert their knowledge in actions and later evaluate actions on the knowledge gathered within the organization [7]. Reay and others argued that in healthcare services, physicians and managers first choose the correct knowledge from existing ones and adapt the knowledge to solve problems and find solutions at hand. This process can help in managing conflicts between management and medical professionals. The process of learning in healthcare is time consuming; yet it provides the precise way to cope with medical crises [16].

Components of Health Learning Organization Culture

The early studies on learning organization focused on five factor model developed by Senge including systems thinking, personal mastery, mental models, building a shared vision, and team learning [17]. Gomes and Wojahn conceptualized learning organization on the basis of four components as experimentation, interaction, risk, and dialogue, found that learning organizations have the capability to improve innovation performance [18]. Additionally, Halim and others included three components of learning organization as information acquisition, information interpretation, and behavioral and cognitive and found an important role of these factors in innovation culture and performance [19].

In the context of healthcare organization, Leufven and colleagues developed seven dimensions that measure organizational learning in low resources healthcare settings [4]. These seven dimensions are continuous learning, dialogue and inquiry, team learning and collaboration, embedded systems, empowerment, systems connections, and strategic leadership. Previous studies on organizational learning in healthcare settings included all top, middle, and lower level employees as part of the study [4,20,21]. However, a little is focused on the role of upper level employees of the hospitals to create an environment of organizational learning. Thus, the main objective of this study was to examine the effect of seven organizational learning components on learning organization culture in government, university, semi government, and private hospitals in Saudi Arabia. Therefore, the study excluded the dimension of strategic learning in conceptualization of strategic learning mainly focus on the support of leadership on learning and leadership models.

Saudi Healthcare System

In Saudi Arabia, the healthcare system is at cross roads where the old publicly funded system, regulated mainly by the government, is now under transition period to be privatized with less power of the government. Almost two-thirds of health provisions are funded by the government, under the regulation of the Ministry of Health. Semi-government agencies like Ministry of Defense, Ministry of Guard and Ministry of Interior contribute also in funding their health settings. Despite such services by the government, private sector and university hospitals contribute slightly in operating the Saudi healthcare system. As the government is under heavy transition periods by the new political leadership, it is expected the funding portion is flipped within decades [5]. As a result of each provision having different policies and priorities, a chasm now exists between knowledge and practice within each entity.

Despite there being separate health providers, the learning organization culture of each entity across the country has not been well-studied. However, learning organization is necessary to implement the strategies that could benefit the organization. In addition, working productivity is also dependent on improved working efficiency and environment that are by products of organization learning. Understanding learning organization culture in such contexts would enhance the resilience of the Saudi system and may enable it to better absorb the adverse effects of the economic and political shocks, especially under such transition periods.

Methodology

This is a cross-sectional study where the overriding objective was to explore the seven domains associated with building effective organization learning culture.

Tool

Consisting of 21 items, the abbreviated form of Dimensions of Learning Organizations Questionnaire (DLOQ) developed by Marsick and Watkins was utilized in this study. The purpose of using this tool was simply because it possessed construct validity and reliability. Three adequate measurement items (individual, group and organization) for each of the seven dimensions included in this study.

Data Collection

In January 2019, the data were collected from four major healthcare providers in Saudi Arabia including Ministry of Health, Teaching, Semi Government, and Private hospitals. The unit of analysis was an individual response. Such responses were clustered at organization level and the target population of the study included top management and unit administrators (medical doctors both males and females). The judgmental sampling method was used to identify the eligible respondents and data were collected through electronic mails. The medical directors were approached, after obtaining the IRB. In total, 1500 emails were potentially sent to the upper level employees of the hospitals.

Procedure and Sampling

This study used G*power software to calculate the minimum sample size as recommended by Hair and others for PLS-SEM analysis and found minimum sample of 146 was adequate as maximum seven predictors pointing at one endogenous variable [23]. Medium effect size and 0.95 power of the model were set for calculation. The sample size of 1131 of the study satisfied the condition of minimum sample size.

Measurement

All items of the constructs were adapted from the existing literature and were slightly modified to fulfill the objective of the study. All the items were measured on a five-point Likert scale that ranged from (1) strongly disagree to (5) strongly agree. All the items for seven dimensions of organizational learning were adapted from [4]. Items for learning organization culture were adapted from [22].

Measurement Model Analysis

Before performing the measurement model analysis, the study conducted Harman's single factor test to ensure that there was no common method bias in the questionnaire survey. The first factors explained 44.44% of total variance and found below than the given threshold of 50% of total variance.

Results

Out of 1500 official emails, only 1131 responses returned as they were used for final data analysis as shown in Table 1.

Table 1

The basic demographic characteristics of the participants and their experience regarding LO

Work nature		Hospital Type*								
		MOH		TUH		SGH		PH		
		n = 274	%	n = 244	%	n = 333	%	n = 280	%	
Yes	Clinical	M	49	17.9	77	31.6	62	18.6	62	22.1
		F	42	15.3	74	30.3	42	12.6	49	17.5
	Administrative	M	62	22.6	33	13.5	94	28.2	71	25.4
		F	68	24.8	27	11.1	74	22.2	50	17.9
	Both	M	20	7.3	11	4.5	18	5.4	8	2.9
		F	21	7.7	8	3.3	30	9.0	9	3.2
No	Clinical	M	2	0.7	5	2.0	2	0.6	9	3.2
		F	0	0.0	6	2.5	1	0.3	8	2.9
	Administrative	M	5	1.8	2	0.8	4	1.2	4	1.4
		F	4	1.5	1	0.4	3	0.9	5	1.8
	Both	M	0	0.0	0	0.0	2	0.6	3	1.1
		F	1	0.4	0	0.0	1	0.3	2	0.7

*MOH = Ministry Of Health; TUH = Teaching University Hospital; SGH = Semi-governmental Hospital; PH = Private Hospital

The representation of the respondents was almost equally distributed from all four categories regarding their work nature in the hospitals i.e., government hospitals (24.2%), university hospitals (21.6%), semi-government hospitals (29.4%), and private hospitals (24.8).

In regard to learning environment, government, and semi-government healthcare settings may provide better learning environment than private hospitals. As, from the total respondents of government, 95.6%; semi-government, 96.1%; and university hospitals, 94.3% responded that the hospital in which they work is a real learning organization. However, respondents from private hospitals (88.9%) confirmed that the hospital was a suitable place for learning organization as shown in Table 2.

Table 2

Responses about the possibility of having an organization as a place of learning

Is this hospital considered as a good learning organization?		Hospital Type									
		MOH*		TUH*		SGH*		PH*		Overall	
		n =	%	n =	%	n =	%	n =	%	n =	%
Male	Yes	131	48	121	50	174	52	141	50	567	50.1
	No	7	2	7	3	8	2	16	6	38	3.4
Female	Yes	131	48	109	45	146	44	108	39	494	43.7
	No	5	2	7	3	5	2	15	5	32	2.8

*MOH = Ministry Of Health; TUH = Teaching University Hospital; SGH = Semi-governmental Hospital; PH = Private Hospital

The study used structural equation model (SEM) with the PLS approach and applied the smart PLS 3.2.8 data analysis tool for model estimation and multivariate analysis. First, the convergent validity of the model was analyzed which included factor loading, average variance extracted (AVE), and composite reliability (CR). Table 3 presents the factor loadings of all the items that exceeded the recommended value of 0.708, as suggested by [23]. However, two items, CL1 and EM3 with factor loadings 0.670 and 0.688 respectively were retained as the AVE of the latent variables represented by these items was exceeded the recommended value. The AVE of all the variables was in the range of 0.722 to 0.774, which exceed the recommended value of 0.50, and CR ranged from 0.890 to 0.910, which exceeds the recommended value of 0.70 [23].

Table 3
Results of Measurement Model and Descriptive Analysis

Latent Construct/Item	Mean (SD)	Factor Loading	CR	AVE
Continuous Learning (CL)	3.652 (0.911)		0.890	0.734
CL1		0.670		
CL2		0.938		
CL3		0.934		
Dialogue and Inquiry (DI)	3.670 (0.906)		0.907	0.766
DI1		0.926		
DI2		0.928		
DI3		0.761		
Team Learning and Collaboration (TC)	3.714 (0.894)		0.897	0.745
TC1		0.907		
TC2		0.910		
TC3		0.765		
Embedded Systems (ES)	3.722 (0.904)		0.897	0.745
ES1		0.737		
ES2		0.920		
ES3		0.919		
Empowerment (EM)	3.673 (0.903)		0.893	0.74
EM1		0.932		
EM2		0.937		
EM3		0.688		
Systems Connections (SC)	3.734 (0.883)		0.885	0.722
SC1		0.700		
SC2		0.915		
SC3		0.916		
Learning Organization Culture (LC)	3.664 (0.921)		0.910	0.774
LC1		0.941		

Latent Construct/Item	Mean (SD)	Factor Loading	CR	AVE
LC2		0.739		
LC3		0.944		

Table 4
Results of Discriminant Validity Analysis (HTMT_{0.85} Criterion)

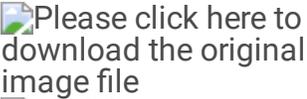
Factors	1	2	3	4	5	6	7
1 Continuous Learning							
2 Dialogue and Inquiry	0.661						
3 Empowerment	0.598	0.656					
4 Embedded Systems	0.560	0.623	0.647				
5 Systems Connections	0.595	0.670	0.730	0.621			
6 Learning Organization Culture	0.606	0.616	0.655	0.647	0.693		
7 Team Learning and Collaboration	0.597	0.701	0.713	0.719	0.693	0.638	

In Table 4, the discriminant validity of the model was tested by Heterotrait-Monotrait (HTMT) ratio. The result explained that the HTMT ratio is a superior criterion as compared to other methods such as the Fornell-Larcker criterion. The discriminant validity of the model was established since all the results of the HTMT. 85 criteria were below the critical value of 0.85 indicating that the items of one latent variable do not overlapping with any other latent variable of the model.

Assessment of structural model

In PLS, the main evaluation criterion for the goodness of the structural model is that the R² measures the coefficient of determination and the level of significance of the path coefficient [24]. The recommended value for R² is between 0.02 and 0.12 weak, 0.13 and 0.25 moderate, and 0.26 and above substantial [25]. As shown in Table 5, the R² value for learning organization culture of 0.475 suggests that 47.5% of the variance of learning organization culture can be explained by six independent variables. The path coefficient in the structural model represents the assumed relationship between variables [23]. In the study, the path coefficients of the structural model were measured, and bootstrapping analysis (re-sampling = 1000) was performed to assess the statistical significance of the path coefficient. The results revealed that continuous learning, dialogues and inquiry, team learning and collaboration, embedded systems, empowerment, and systems connections all have significant positive relationship with learning organization culture.

Table 5
Results of Structural Model

Relationship*	Beta	SE	T-Value	P-Value	Relationship	VIF	R ²	Q ²
CL -> LC	0.142	0.030	4.786	0.000	Yes	1.613	0.475	0.343
DI -> LC	0.087	0.034	2.591	0.005	Yes	1.982		
TC -> LC	0.104	0.034	3.070	0.001	Yes	2.174		
ES -> LC	0.186	0.030	6.302	0.000	Yes	1.828		
EM -> LC	0.130	0.033	3.901	0.000	Yes	1.951		
SC -> LC	0.227	0.034	6.687	0.000	Yes	1.909		
 								
*LC = Learning Culture; CL = Continuous Learning; DI = Dialogue and Inquiry; TC = Team Learning and Collaboration; ES = Embedded Systems; EM = Embedded Systems; SC = Systems Connections								

In this study, the strength of relationships between independent and dependent variables is shown in Fig. 1. Variation in thickness of the arrows depicts that the thicker the arrow, the stronger relationship of an independent variable has with the dependent variable.

Discussion

The aim of the study was to examine the factors influencing building effective organizational learning culture in various hospitals. Having theoretical and practical implications, this study bridges the gap in literature on learning organization culture in healthcare settings. Besides, study findings guide top management of hospitals and policy makers to develop policies and guidelines based on organizational learning that create cohesive work environment among various departments of hospitals to provide quality services to patients. Becoming a learning organization is complex and provider-based specific. Unlike process and outcomes indicators, the structural indicators have influence on formulating effective health learning organization culture.

First, structural indicators including system connections and embedded system were reported to have a major influence on learning organization. Indeed, the structural components of the health organization have the strongest relationship in formulating health learning organization culture. Systems connections explain that an organization must observe a problem from different aspects and encourage employees to engage across the organization and with outside environment to bring solutions [17]. Unlike in western settings, hospitals in Asian countries, generally, lack practice of engaging the general population to

develop new ideas and learning [26, 27]. Collaboration with community welfare organizations, local health departments, and health consultants will bring new knowledge to hospitals and guide in implementing strategies to overcome challenges faced by the hospitals. Hospital management and policy makers could promote a culture of engagement of employees within an extrinsic-intrinsic environment and share new knowledge across the organization for continuous learning. Acquired knowledge incorporated from outsiders but embedded in the working systems, practices, and structures can be used and shared to improve performance [28]. In healthcare settings, the learning acquired from the new knowledge should be deep rooted and become part of daily operations of the hospitals.

Empowerment and team learning, formulating the process factors in learning organization culture, were also positively related to learning organization culture. Empowerment is a process in which employees of every level take part in collective decision making and accountability. This practice develops motivation among employees to acquire new knowledge so that they can take better decisions [28]. Team learning is a situation where individuals think together, share experiences, knowledge and skills to do the things in better way [17]. However, in healthcare settings empowering every employee to a level where s/he becomes a part of collective decision making is a huge challenge. Healthcare systems all across the world are predominantly governed by bureaucracy and hierarchical structure with set rules and operating procedures and left no room for many employees to be a part of decision making [29, 30]. Employees, both medical and non-medical, remain excluded in decision-making but bound to implement the instruction and guidelines with high perfection. Policy makers and top administration must ensure the inclusion of hospital employees of every level in collective decision making so that they can also become part of learning and contribute to the growth of healthcare system. Continuous learning was also found strongly related to learning organization culture. In healthcare services, skills and knowledge can easily be outdated due to evolvement of technology and procedures. Therefore, medical and non-medical staff must engage in continuous learning for their self-satisfaction and overall quality of healthcare services. However, researchers argued that continuous learning at individual level is important but not sufficient to improve performance unless and until not embedded in systems [28]. Therefore, hospital management should ensure that learning is not limited to individuals only and installed as part of systems so that teams and individuals can use it uninterruptedly.

Outcomes indicators including team learning, dialogues and inquiry were the least important aspects to develop a culture of learning in hospitals and healthcare institutions. Dialogues and inquiry are the reasoning skills to express views and the capacity to listen and inquire about the views of others [28]. Logical reasoning and dialogues open space for critical thinking and bring logical and appropriate solutions to different situations. However, in most of the Asian work settings expressing views openly and freely is unwelcoming among colleagues and superiors. This is again mainly due to bureaucracy and hierarchical nature of functioning in healthcare systems. However, giving voice to every individual to express their reasoning and logical thinking in healthcare institutions will open space to bring in new ideas and contribute to the culture of learning. Providing satisfactory services to patients requires team work and involves teams and individuals of different expertise. Patients visit to hospitals usually come in contact with employees work in different medical and non-medical departments. Employees that come in

contact with patients should receive new knowledge and instill it into the working systems. However, many developing healthcare systems face the problem of communication and coordination gap between different departments of the hospital [4, 31]. A culture should be developed within the hospital, where systems ingrained with new knowledge are well connected. However, learning can be shared across the organization to enhance service quality if key figures within the health organization are involved [32].

Contextually, caution should be given to generalize the study findings in healthcare systems of other developing countries due to situational and cultural differences. Furthermore, the use of non-probability sampling to collect data due to the unavailability of sampling frame is another limitation of the study. Future studies should utilize similar variables and test their relationships in different healthcare settings and compare the findings of this study and observe the effect of situational factors and culture on learning organizational culture.

Conclusion

Learning culture can become a guiding tool for organizations to improve skills and knowledge of individuals and teams and develop a culture to work together and deliver quality services. Policy makers and the top leadership should work towards creating a sense of shared purpose among medical and non-medical staff at middle and lower level. Well-connected systems embedded with learning culture will help to build effective relationships, coordinated actions and the reflections that strengthen the desirable practices in healthcare while correcting structures, procedures, and assumptions. In simple, leadership of healthcare organizations can create a continuous learning environment. This study demonstrated the usefulness of implementation of organizational learning practices based on seven dimensions that can lead to transfer hospitals and healthcare institutions into learning organization.

The findings of this current study and the existing body of evidence have approved that there are some associations between effective learning organization and certain extrinsic organizational practices. Sure, embedded system like linkage of medical episodes, in medical and non-medical fields, have shown a positive impact among the sample in increasing knowledge-environment. Addition, building strong reliable health information system, especially for decision making throughout the hospital would increase the chances of knowledge transfer among health practitioner. The absence of building health learning organization may promote ineffective performance within a holistic healthcare system.

Abbreviations

OL: Organizational Learning; MOH: Ministry Of Health; TUH: Teaching University Hospital; SGH: Semi-governmental Hospital; PH: Private Hospital; SEM: Structural Equation Modeling; PLS: Partial Least Square; DLOQ: Dimensions of Learning Organizations Questionnaire; CL: Continuous Learning; DI: Dialogue and Inquiry; TC: Team Learning and Collaboration; ES: Embedded Systems; EM: Empowerment; SC: Systems Connections; LC: Learning Organization Culture; HTMT: Heterotrait-Monotrait Ratio of Correlations; AVE: average variance extracted; CR: Composite Reliability.

Declarations

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Ethics approval and consent to participate

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Consent for publication

Not applicable

Competing interests

The authors declare that he has no competing interests.

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Figures

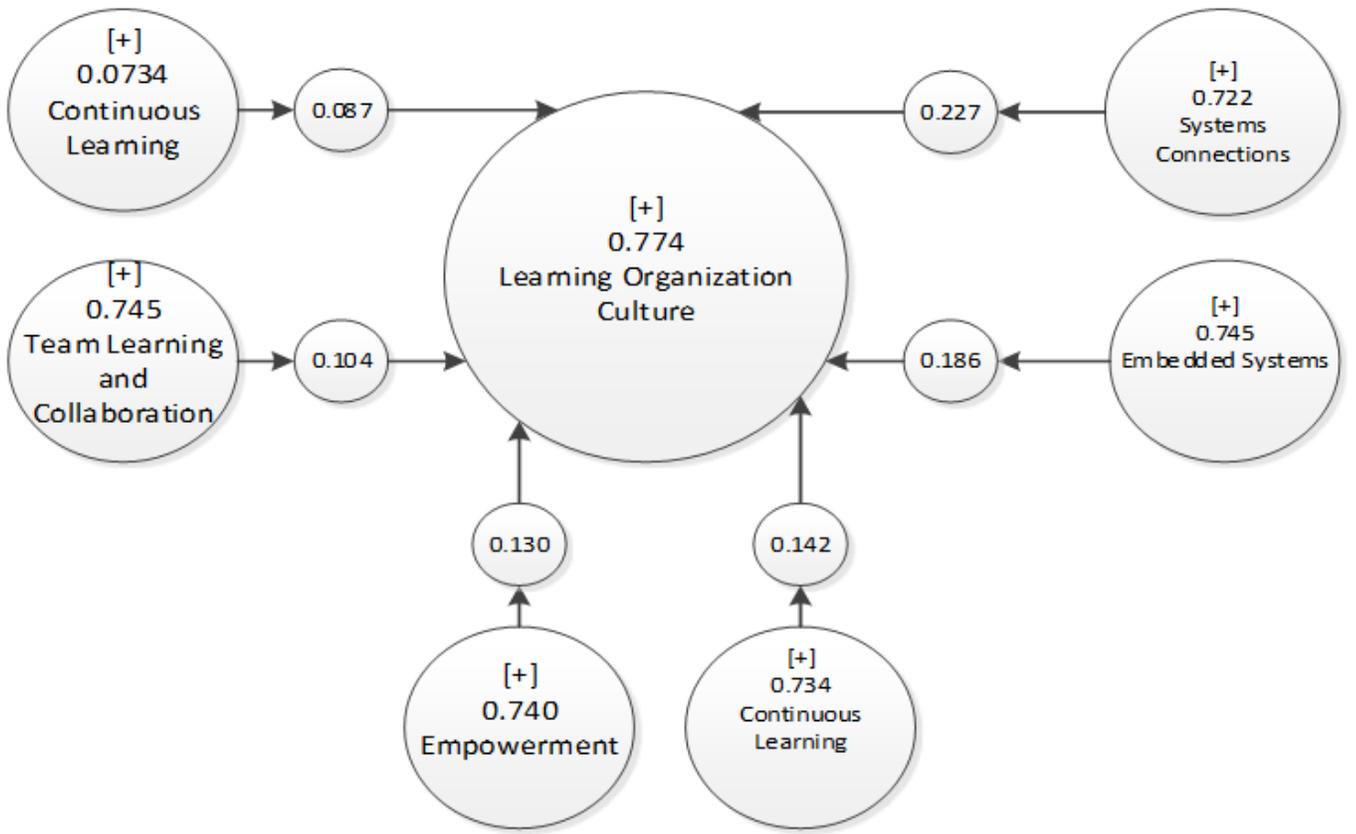


Figure 1

The strength of relationships between independent and dependent variables