

# Validating Learning Organization in the Medical Profession: A Preliminary Analysis

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## Abstract

*This study investigates the underlying pattern of learning organisation practices among medical doctors using Learning Organization Survey (LOS) designed by Garvin, Edmondson and Gino (2008). The instrument was modified to adapt to settings in clinical care. A preliminary data of 150 medical doctors were used for reliability and exploratory factor analysis (EFA). Cronbach's alpha indicated an excellent reliability score. The outcome of EFA was a seven-factor solution. While some subscales converged to new factors, the three building blocks of a learning organisation successfully retained the original items. The outcomes reveal that LOS in the context of medical vocation is reliable and valid at an initial stage. The three building blocks of a learning organisation as specified by Garvin et al. (2008) can, therefore, be instrumental in fostering continuous learning in medical vocation. The conception of the learning organisation, albeit important for continuous development of human resources for health in the 21st century, was not well researched in medical vocation. The present study, in this context, is an initial analysis that suggests grounds for future research. The findings call for further enquiries with an expanded sampling framework as well as further validation on LOS using confirmatory factor analysis.*

**Keywords:** *Learning organisation; exploratory factor analysis; medical vocation*

**JEL Classification:** *M530*

## INTRODUCTION

Medicine is an exalted vocation that deals with restoring human health through the provision of medical care to the impaired. The discipline is evolving fast, and medical care today is more advanced than before. Change is now inevitable in diagnostic and treatment methodologies for the provision of holistic health care. Pursuing a medical vocation, therefore, calls for life-long learning and the medical bodies around the world are much emphasising on improving doctors' skills. However, the main focus has been on continuous medical education

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(CME) and continuous professional development (CPD) programs for monitoring education and validated competencies. Such programs offer continuing education mainly through participating in online programs, attending conferences/workshops and writing publications. The basic approach is academic that requires the documentation of educational activities. Focus is more on formal and off the job learning that is often associated with re-certification and re-registration in many countries. Rather than life-long learning for quality care, CPD/CME has evolved as a scholastic continuation in medical education. It less focuses on continuous supervision, practice-based learning and team learning. Moreover, CPD/CME programs are less structured and yet stranded in an earlier stage of implementation in many developing countries of the world.

Medicine is tagged a busy vocation. The element of time pressure hinders the participation of medical doctors informal training programs. In particular, for those who are associated with hospitals. Therefore, lifelong learning cannot be unhitched from the workplace. As compared to academic learning that is focused on learning about things, workplace learning much focuses on learning how to do things (Sessa & London, 2015; King et al., 2019). Relevance is the key when learning is associated with clinical practice (Karim et al., 2013; Luconi Et al., 2019) and experiential learning engages individuals to learn in relevant contexts (Cox et al., 2010). In clinical settings, experiential and simulation-based learning provides a platform for reflection (Sand et al., 2014; Falloon, 2019) and both experiential and reflective learning experiences exhibits transformation (Sessa & London, 2015). A structured reflection is central to self-directed learning and helps in identifying learning needs among medical doctors (Siddiqui, 2007). When individuals are committed to improving and offered them opportunities to reflect the individual-learning, this paves the way towards a learning organisation (Serinkan et al., 2014).

In the line of delivering multiple services to education and research for the prevention and treatment of health problems, the hospitals ought to transform into a learning organisation (Mohebbifar et al., 2015). Evidence from other sectors also suggests that in health care, learning organisation practices must play a more central role than the continuous professional development (Davies & Nutley, 2000; Mervyn et al., 2019). Today, it is imperative to investigate the structure of learning organisation practices to know its very role in life-long learning of medical doctors. However, this cognisance is still missing in previous literature. How much the learning organisation practices are trackable in medical vocation is yet questionable.

Prior work on learning organisation had been discussing the notion as a broader concern, limiting it to upper management and ignoring the smaller individual units where critical operations are performed (Garvin et al., 2008; Hsu & Lamb, 2020). Since key functions in a hospital are performed in specialised units, it was argued that a hospital structure is too complex to be transformed into a learning organisation. However, the constant evolution of the construct has conceptualised new frameworks to measure LO practices at the unit level.

This study aims to investigate the latent structure of learning organisation practices among medical doctors using “Learning Organization Survey” (LOS) by Garvin et al. (2008). The instrument classifies the three broader facets of learning organisation in previous literature as the three building blocks. The survey is designed as a diagnostic tool to evaluate and compare learning levels in several areas with a focus on smaller units/groups where critical operations

are performed. The tool is therefore congruent to hospital settings where the work is allocated functionally in small units, performing as a team. Hence exploratory factor analysis (EFA) is deemed to be the most appropriate technique for initial evaluation. This study would conduct EFA to trace the latent structure of learning organisation practices among medical doctors.

### *A learning organisation*

Change is rendered effective if incorporated internally and comes through people where learning contributes to developing them for organisational change. A learning organisation, therefore, is the organisation that is active enough in creating, acquiring and transferring information throughout the organisation so that it may approach all the organisational members thus enabling them to modify their behaviour and reflect new knowledge and insight (Garvin, 1993; Garvin et al., 2008). A learning organisation endeavours to enrich its members, infusing competency and capitalising their experiences (Ionuþ-Cosmin, 2009; Mubarak et al., 2017). It enhances people capability to learn, modifies and define organisational structures, individual's mindset, culture and design of jobs while ensuring people involvement and incorporating a culture of shared learning (De Villiers, 2008; Sreeja, 2017).

The Learning organisation is defined as a place characterised by continuous enhancement of people potential for generating the results they desire (Senge, 1990). It emphasises much on continuous learning, improvement and transformational capacity (Watkin & Marsick, 1996). The conception is developed on the theoretical foundation of organisational learning with a methodological and action-oriented approach towards learning process and practices within an organisation. The connotation is characterised by (a) a culture that reinforces a learning atmosphere (b) a system of encouraging learning and development through recognition of individuals learning needs and facilitation of learning process and (c) a structure to ensure assistance and implementation of learning activities (Armstrong & Foley, 2003; Calhoun & Douglas, 2019). Definitions of learning organisation in previous literature may be embraced under four main streams, i.e. as learning, a strategy, a target and organisational culture (Xianting & Fungfai, 2010).

### *Learning organisation survey (LOS)*

Garvin et al. (2008) designed this measurement tool to evaluate and compare learning among different organisations or that within various units of a similar organisation. LOS is based on three extensive and essential building blocks of the learning organisation, i.e. (i) A supportive learning environment (ii) Concrete processes and practices and (iii) leadership that reinforces learning. Each building block and its sub-components are distinct and measure all type of units/firms. A psychologically safe environment characterises the first building block; appreciate differences, open to new ideas and where workers find enough time for reflection. The second building block enlightens the process and practices of generating, collecting, analysing and dispersing information. The last building block marks the behaviour of the leaders in reinforcing learning within an organisation. These three blocks support one another in fostering a learning organisation

### *Face validity*

The earlier draft of the questionnaire was initially assessed for face validity. According to

Sekaran (2003), the questionnaire language must match with the respondents' comprehension level. Therefore, the questionnaire was discussed with six medical doctors working in hospitals in Pakistan and two faculty members of a medical college in Pakistan. The questionnaire was modified for language and checked for simplicity and ease in comprehension in order to get maximum response from the survey. The tool was shortened by excluding items that were repeating and/or not congruent to the context of medical practice. Items like "keeping cards close to the vest to get ahead" that was profound as well as idiomatic were discarded.

***Content validity***

The content of the questionnaire was initially assessed by medical practitioners while screening for face validity, as mentioned previously. The items were discussed in the context of medical practices in hospitals while reading and answering each item. Such items that were typical to the context of organisational strategies and external environment like "systematic information collection from competitors" were also eliminated. Changes were mainly suggested in the subscale of learning practices. A sub-dimension with items on experimenting new ways and products was removed as well. It was discussed that such experimentations are not anticipated to function in hospital settings where standard procedures are followed. The second draft was then assessed by two PhD scholars in the area of specialisation for content analysis. No significant changes were suggested in the refined scale, and it was ensured that the items in the assessment instrument sufficiently represent all the broader facets of the learning organisation.

***Instrumentation***

The final questionnaire was composed of two sections. The first section was designed to gather the respondent's demographic information on age, gender, religion, type of organisation, total work experience and length of service in the current hospital. The second section contained items on three broader building blocks of the learning organisation. The questionnaire included both positively and negatively keyed items with responses anchored on a seven-point Likert Scale where 1 = strongly disagree and 7 = strongly agree. The description of the instrument is presented in Table 1.

*Table 1: Description of the instrument*

<b>Construct</b>	<b>Dimensions in Construct</b>	<b>Items</b>	<b>Literature Source</b>
<i>Learning Organization</i>	<i>a) A supportive learning environment</i>	12	<i>Garvin et al. (2008)</i>
	<i>i) Psychological safety</i>	3	
	<i>ii) Appreciation of differences</i>	3	
	<i>iii) Openness to new ideas</i>	3	
	<i>iv) Time for reflection</i>	3	
	<i>b) Learning processes and practices</i>	11	
	<i>i) Information collection</i>	3	
	<i>ii) Information analysis</i>	3	
	<i>iii) Education and training</i>	3	
	<i>iv) Information transfer</i>	2	
	<i>c) Leadership that reinforces learning</i>	4	

### *Method of data collection*

Data was collected through a survey of medical doctors in a private hospital in Pakistan. A self-administered questionnaire was used for this purpose. A cover letter attached to each questionnaire explained the purpose of the study and assured the confidentiality of the research data. The participants were not required to mention their name, unit and organisation name on the questionnaire in order to protect their anonymity and get the maximum degree of responsiveness. All those medical doctors that could be conveniently accessed, like available medical doctors in the cafeteria, doctors' rooms, prayer rooms and seminar rooms were approached for data collection. Participation in the survey was held voluntarily. Questionnaires were self-administered and personally collected by the research team. Most of the participants (63%) were young medical doctors, 29% were in the middle to upper-middle age, and 8% were in the age bracket of 50 and above. Around 54% were male, whereas 46% were female. The total experience of participants was coherent to their age brackets. Approximately 67% of respondents had an experience of 7 years or less, 21% had an experience of 8 to 15 years, and around 12% were highly experienced (i.e. 16 years and more). The current work experience of participants depicted a different figure. Most of the medical doctors (80.2%) were not senior in their respective organisations with the majority (61.5%) of them working for the last three years or less.

### *Exploratory factor analysis*

To run factor analysis, a minimum of 50 observations and at least five times as many observations as variables is required (Habing, 2003; Hair, Black & Babin, 2010). Following the above rules, a data set of 150 medical doctors was considered sufficient for this preliminary analysis. The data was entered in Statistical Package for Social Sciences (SPSS) for analysing the reliability and validity of the instrument. The items were measured for internal consistency using Cronbach's alpha coefficients. The overall construct and individual dimensions of the construct were identified internally consistent (Cronbach's alpha ranging from 0.82 to 0.90). The only item on "differences of opinion held privately" could not meet an internal consistency criterion (inter-item correlations -0.247 to 0.207 and corrected total item correlation of -0.031). Cronbach's alpha moved from 0.809 to 0.823 (for the dimension of the learning environment) and 0.91 to 0.92 (overall) after the item was discarded. The results of the reliability test are presented in Table 2.

*Table 2: Results of Reliability Analysis*

<b>Instrument</b>	<b>Cronbach's Alpha</b>	<b>N of Items</b>	<b>Corrected Item - Total Correlation</b>
<i>Learning Organization Practices</i>	0.92	26	> 0.346
<i>A Learning Climate</i>	0.82	11	> 0.388
<i>Learning Practices</i>	0.90	11	> 0.534
<i>Leadership That Support Learning</i>	0.89	4	> 0.688

The construct was validated through factor analysis with Principle Component Analysis (to conclude few interpretable factors) and varimax rotation (for discriminate scales) as a method of extraction. Data's sampling adequacy was assessed through Kaiser Meyer-Olkin (acceptance value of 0.6 and above) and Bartlett's Sphericity test (p-value less than 0.05). Items with factors loadings above 0.5 were considered acceptable for practical significance (Hair et al. 2010). Factors having eigenvalues greater than 1, after further screening through scree test (for

optimum factor extraction), were retained for further analysis.

The result of KMO test was .741, i.e. higher than the threshold of .6, whereas Bartlett’s test p-value was also observed to be less than .001. The items loaded to a total of seven factors. None of the items displayed a factor loading less than 0.5 and all the items were significant practically.

The three dimensions of learning organisation practices were observed to have their original items. Items in subscales of “Appreciation of Differences” and “Psychological Safety” loaded to a single factor and identified as “A Psychologically Safe Workplace”. Items in subscales of “Information Analysis” and “Information Transfer” also converged to a single factor and were figured out as “Information Sharing and Analysis”. The rest of the subscales, i.e. openness to new ideas, time for reflection, information collection, education and training, and the clinical leadership that reinforces learning retained the original items. The scale met an adequate level of explanation (communalities > 0.64). The detail is presented in Table 3.

*Table 3: Rotated Component Matrix of Learning Organization Practices*

<b>Factors</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<i>Comfort in talking about problems</i>			0.731				
<i>Mistakes often held against you</i>			0.676				
<i>People eager to share that does/doesn't work</i>			0.742				
<i>Differences in opinion welcomed</i>			0.711				
<i>Opinion not valued if inconsistent with others</i>			0.629				
<i>People interested in better ways of doing things</i>						0.776	
<i>People value new ideas</i>						0.773	
<i>People often resist untried approaches</i>						0.721	
<i>Find time to review how work is going</i>							0.670
<i>The schedule gets in the way of doing a good job</i>							0.872
<i>Too busy to invest time in improvement</i>							0.922
<i>Systematically collection of patients information</i>					0.776		
<i>Systematic collection of health information</i>					0.807		
<i>Systematic collection of technology information</i>					0.777		
<i>The unit engages in productive discussions</i>	0.776						
<i>Unit consider different views during discussions</i>	0.806						
<i>The unit discusses every aspect affecting decisions</i>	0.760						
<i>The unit regularly shares information in the organisation</i>	0.589						
<i>The unit quickly accurately transfer new information</i>	0.685						
<i>Unit value employee training</i>				0.739			
<i>Employees in a unit receiving adequate training</i>				0.885			
<i>Time for education/training activities</i>				0.835			
<i>Heads inviting input from others in discussions</i>		0.796					
<i>Heads encouraging multiple points of view</i>		0.891					
<i>Heads providing time/resources for reflection</i>		0.773					
<i>Heads criticising views different from their own</i>		0.839					

## **DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS**

This study explored the learning organisation practices in medical vocation using LOS. The three building blocks of learning organisation practices successfully retained the original items. The results disclosed that the items of appreciation of differences and psychological safety at work would reinforce each other. A psychologically conducive workplace ensures no punishment or humiliation on telling ideas or making mistakes (Rooden, 2018) and is deemed necessary to avoid risk-taking associated with sharing novel thoughts (Hirsch, 2018). Generally, members of an organisation are trained in expressing thoughts, receiving feedbacks, resolving conflict and integrating the best ideas to provide better solutions (Erkutlu & Chafra, 2015; Erkutlu & Chafra, 2019). Therefore, in a work unit, members develop psychological safety when they feel comfortable in expressing ideas and receive the appreciation of the same (Nembhard & Edmondson, 2006; Frazier et al., 2017). This appreciation of differences promotes to provoke discussion, which is inevitable for the provision of quality medical care to the impaired.

It is further revealed that, in practising medicine, a fast, accurate, and regular information sharing is elementary for and provoked through comprehensive and productive discussions. The very nature of doctor's job is sensitive, procedural and technical. Any error thereof may lead to the loss of human life. Quick and accurate sharing of information among medical doctors as well as timely decision making are elemental for quality medical care. Effective team communication in hospitals is therefore inevitable, in particular, in risky situations which may lead to major unpleasant events and incidents (Reader, Flin & Cuthbertson, 2007). Both interdisciplinary and intradisciplinary consultation among medical practitioners for problem-solving promotes opportunities for shared learning (Pimmer, Pachler, Nierle & Genewein, 2012; Lyons et al., 2017).

LO may play a central role in professional development and lifelong learning of medical doctors. The findings indicate that LO practices are instrumental in fostering continuous learning in medical vocation. A deliberate effort of integrating learning organisation practices in medical practice may (i) create a culture of openness of ideas, inquiry, creativity and knowledge sharing (ii) promote learning-oriented clinical leadership (iii) improve the quality of medical care through continuous enhancement in individual skills (iv) enhance organisational knowledge-base through transferring the generative knowledge of units within organisations (v) enable individuals to adapt to changing external environments and (vi) develop and sustain a competitive edge.

The scale is reliable in the context of medical vocation in Pakistan and valid at the initial stage. However, this study is reliant on the voluntary participation of the population of the study, i.e. licensed medical doctors working in private hospitals and on their integrity in answering the survey questions. Findings call for enquiries with a diverse population of professionals in medical care, enquiries with an expanded sampling framework and a further validation on LOS using confirmatory factor analysis. Both national and international studies, in this context, are suggested to elucidate the generalizability of the results of this study. Nevertheless, using a qualitative approach with quantitative analysis in future studies may portray a nuanced image of learning organisation practices and richly inform us of the same.

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