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Applicability of the Theoretical Model of a School Becoming a Learning Organization in the Pakistani City of Karachi

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Abstract

This study aims to develop and validate a scale to measure the concept of a school as a learning organization within the context of Karachi, Pakistan. Given the growing emphasis on fostering continuous learning and adaptability in educational institutions, the research seeks to understand how schools in this emerging era can embody the principles of a learning organization. The study employs a quantitative methodology, beginning with a survey questionnaire developed on a scale consist of seven constructs adopted from the work of Kools and Stoll (2016) by measuring the responses of school heads/principals, vice principals, coordinators and teachers. The data is analyzed using exploratory and factor analysis to ensure the reliability and validity of the scale. The findings obtained provide insights into the specific characteristics and challenges of implementing learning organization principles in schools within the unique cultural, social, and educational landscape of Karachi. The scale is further analyzed for its predictive validity to find out its effect on job satisfaction. The validated scale that is obtained by collecting the responses from different sector schools in Karachi Pakistan will serve as a valuable tool for educational policymakers and administrators aiming to promote a culture of continuous improvement and learning in schools through transformation of their school into a learning organization across Karachi, Pakistan.

Keywords: Continuous learning, Education and learning, Educational institutions, Learning organization

INTRODUCTION

Work-based and teacher-initiated learning have been included in formal teacher education to better address the changing requirements of students and enhance teaching strategies over time (Darling-Hammond, 2016). A work-based collaborative learning culture is essential for teachers' professional development since teaching is a complicated profession that requires continual learning to update pedagogy and practices (Han et al., 2015; Moolenaar, et al., 2012). Much work is done in the past to revisit the culture of school and to change the traditional mode of teaching and learning into an innovative way to get the best way of practices through collaboration and workplace learning (Fullan & Quinn, 2015; Schleicher, 2012). Work-based learning sparked teachers reflective and cooperative learning attitudes, which also helped them feel inspired and confident when collaborating with colleagues and peers to discuss evolving issues and practice limitations (Darling-Hammond, 2016, Palujanskiene & Svagzdiene 2020). Moreover, shared vision developed among school staff and teachers provides teachers with a framework to do planning, sharing best practices and providing constructive feedback for the development and improvement of teachers (Van Tartwijk & Lockhorst, 2014). Kools and Stoll (2016) describes seven core elements (given below) to promote a learning culture in school which leads to helping a school becoming a learning organization:

- Developed a shared vision.
- Promoting and supporting CPL (continuous professional learning)
- Teamwork and collaboration
- Developing a culture of enquiry and exploration
- Systems for collecting and exchanging knowledge.
- Learning from larger system
- Modelling and growing leadership

Learning organizations are highly responsive to changes, and in the modern age, the culture of schools is very dynamic; changes are evolving, urging the school to adapt to a change from the traditional mode of learning to new ventures (Benavides, et al., 2010). Teachers can become an active part of it through teamwork, collaboration, sharing knowledge, and modelling leadership. School leaders have a critical role in all of these, as they are the ones who implement this innovative culture and delegate authorities, due to which every member of the school becomes accountable for their work. A learning organization appreciates the value of contribution that learning can make to the growth of "organization effectiveness" (Yang, 2007). It practices it by showing a future of learning and the support of organizations by creating

strategies that will support this vision (Rerup & Levinthal, 2014). The leader of the organization is committed to fulfil the idea of importance and seriousness of learning by clearly communicating to its organization structure of a learning organization considers the natural and usual hurdles that are faced by learning, so it aligns its strategy carefully while avoiding the lurking of “silos” and reducing the hierarchy level (Darwin, 2017).

Contemporary era is very challenging bringing in heavy duties on educational sector to upbringing and develop the child in a way to meet the future needs thereby looking to see the school into a position of a learning community (Palujanskiene & Svagzdiene, 2020). Schools can also be coined as the name of “Learning Communities” (Hiatt-Michael, 2001). School, when viewed in the form of a learning organization, can provide professional development of their teachers to improve their learning (Harris van Tassell, 2005). A learning organization is a place where all staff members accept each other, share their ideas and innovation to each other, work for common targets and to achieve institutional goals (Erdem, et al., 2014). Kools and Stoll (2016) describe seven core elements for school to be as a learning organization as discussed in theoretical background of the study.

The work of Kools and Stoll (2016) and then (Kools et al., 2020) in Welsch context has opened many horizons for the development of school as all learning organization. Due to its extreme significance, the relevancy of the model is checked in a few areas. Researchers in several nations have used this theoretical framework to investigate the challenges related to school-based learning culture and its efficacy. For example, the work of the OECD has brought practical application and has found out the working model that can transform a school into a learning organization (ORCD, 2018). The scale thus developed after extensive study to measure the effectiveness of schoolworking as a learning organization, is applied in some contexts but still it needs to be applied in varied areas for the validation of the tool.

Studies on quality education in Pakistan show that teachers’ inadequate subject knowledge and pedagogy contribute to the general low quality of education at the school level. Though teachers go through an initial teacher education program, they are unable to provide their students with an enabling learning environment (Hobbs & Porsch, 2021). The biggest reason for this is the restricted learning culture available to teachers, which discourages teachers from making efforts to upgrade their teaching and learning practices (Haiyan, 2017; Saeed, et al., 2013). It has also been investigated that head teachers have a limited role resulting from their lack of understanding of the collaborative learning culture in schools. The literature suggests that innovative ideas are mainly from western contexts and are not relevant and adaptable in the context of developing countries.

This research work attempted to explore the applicability of the theoretical model of a school becoming a learning organization in the Pakistani city of Karachi. The research study aims to measure the efficacy of theoretical framework (Kools & Stoll, 2016) in the context of Karachi, Pakistan. Hence, this study addresses the following two components:

- To measure the reliability and validity of the measurement tool in the present context
- To identify key components that can define a school as a learning organization.
- The research study attempts to answer the following research questions:
- What are the key indicators included in the tool of the school as a learning organization?
- How consistent, valid and reliable are the indicators of the learning organization tool in context of Pakistan?

LITERATURE REVIEW

History of Learning Organization, started from the first invention of the term that came from the well-known book by Senge (1990). The gentleman has been synonymous with the concept of Learning Organization since then. Although the first person to really use the term “learning organization” was (Garratt,1987) Senge has been considered the father of this idea. Organizational learning is a type of

learning where some form or shape of organizational area is linked to the learning process. It can take shape in the way of (Basten & Haamann, 2018):

- The organization being a facilitator, arranger of the learning in the group that is being achieved by individuals
- The organization being an inclusion for the learning entity
- The organization being the end result

This implies that the organization mends its ways to allow the learners a facility to learn and allow them to learn the work that they are a part of. The employees are motivated to test and try and encourage the idea of “failure” as a learning endeavor (Bell, 2000).

A version of organizational learning that observably describes it as “learning organization” is when what the learner studies is preserved as an organization outside of their own learning. Argyris and Schön (1997) and Kim (2009). The “organizational memory” is constantly studied and kept up to date as it functions as the root of their work and nourishes their further learning. The “learning structure” of the organization is segmented into teams where every member of a team has learned to perform a task that every other member is expected to work on as well (Lim & Chan, 2004). This helps reduce reliance and allows any member to work on those tasks if there happens to be some issue. This provides a type of flexibility where each member can work on a single task in such an efficient way as each of them has the same type of knowledge and practical expertise. These skills have to be kept up to date as long as they work in the group as a single unit.

A learning organization appreciates the value of contribution that learning can make to the growth of “organization effectiveness” (Yang, 2007). It practices it by showing a future of learning and the support of organizations by creating strategies that will support this vision (Rerup & Levinthal, 2014). The leader of the organization is committed to fulfil the idea of importance and seriousness of learning by clearly communicating to its organization’s structure of a learning organization considers the natural and usual hurdles that are faced by learning, so it aligns its strategy carefully while avoiding the lurking of “silos” and reducing the hierarchy level (Darwin, 2017).

Contemporary era is very challenging bringing in heavy duties on educational sector to upbringing and develop the child in a way to meet the future needs thereby looking to see the school into a position of a learning community (Palujanskiene & Svagzdiene, 2020). Schools can also be coined as the name of “Learning Communities” (Hiatt-Michael, 2001). School, when viewed in the form of a learning organization, can provide professional development of their teachers to improve their learning (Harris & Tassel, 2005). A learning organization is a place where all staff members accept each other, share their ideas and innovation to each other, work for common targets and to achieve institutional goals (Erdem, et al., 2014). Kools and Stoll (2016) describe seven core elements for school as a learning organization as discussed in theoretical background.

A teacher learns through collaboration, reflection and peer learning. Reflective learning is one of the important elements of school as a learning organization (Kirkham, 2005) and one of the core pillars for teacher’s learning (Schön, 2017) and the schools that have reflective mindset demonstrates they are learning (Senge, 2012). Teachers in learning organization work with and for each other and this brings a change in culture. Constructive feedback is a very important tool for the development and improvement of teachers. These practices should be kept in continuum to produce productive outcomes (van Tartwijk & Lockhart, 2014).

Exactly how a school can work as a learning organization requires further research and exploration (Kools & Stoll, 2016). The work of Kools and Stoll (2016) and then (Kools et al., 2020) in Welsch context has opened many horizons for the development of school as all learning organization. The scale thus developed after extensive study to measure the effectiveness of school working as a learning organization, is applied in some contexts but still it needs to be applied in varied areas for the validation of the tool.

METHODOLOGY

The research utilized quantitative methodology, as the objective of the study was to validate the measurement of the school as a learning organization. Research aligns with a positivist philosophical stance, adopting a deductive approach. As research is based on a defined, constructed tool, a theoretical stance is already provided, which is to be proved in the current study. The tool was adopted from a study conducted by Kools and Stoll (2016) and was based on seven constructs. They applied the tool in the Welsch context, and an eight-concept tool was developed with 69 variables (Kools et al., 2020). For the current study, a 69-item variable tool was adopted by the work of Kools, as his coworkers demonstrated below.

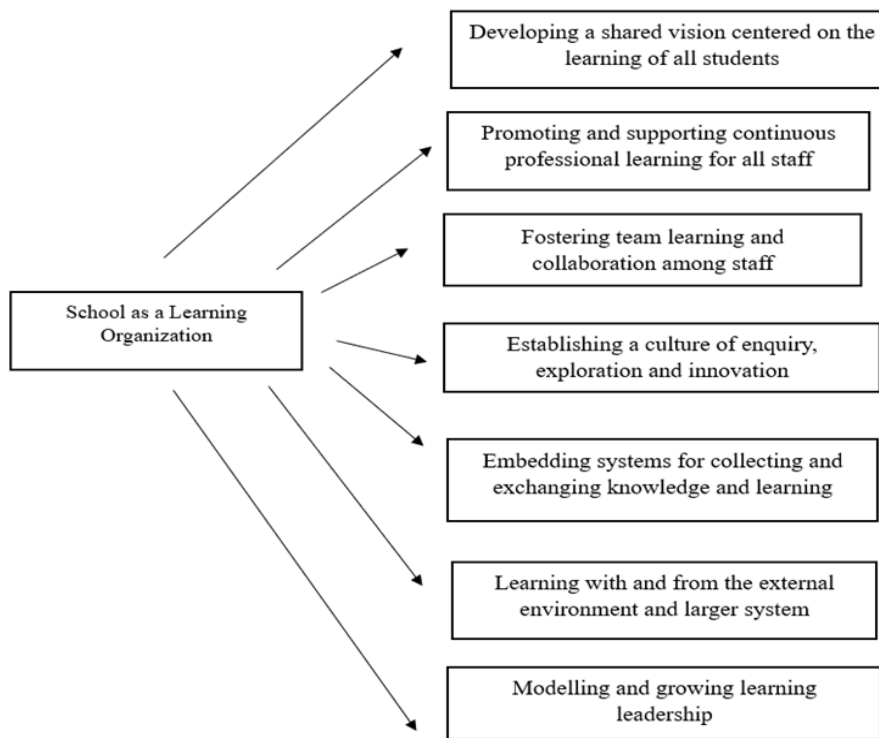


Fig.1. Model of School as a Learning Organization OECD 2016

The data was collected from public and private schools in the district east Karachi. There were 12 public schools and 13 private schools. Schools were selected on purposive sampling and inclusion criteria for sampling was:

- Enrollment in numbers 300 or above students
- Academic staff are technically trained
- School leaders' willingness and IT literacy skills

Google form was developed, and link was shared with school principal, teachers and other educators. Data collected through questionnaire was analyzed through SPSS version: 22. Factor Analysis was done to measure the Welsch tailored model of "School as a Learning Organization. The total number of responses that were collected was 480 which was measured on a tool of seven constructs made of 69 variables. Demographic details of the respondents are listed below in Table 1.

Table 1
Demographic Details (n = 480)

Gender	n	Designation	n	School Type	n
Male	173	Principal/ Head Teacher	134	Government	201
Female	307	Coordinator	167	Private	269
		Teachers	179	Anonymous	10

Data was screened for outliers and missing values. There was no missing value found in the data. After

calculating Mahalanobis distance, when CDF. CHISQ is computed, it showed 3 values less than 0.001 indicating 3 outliers are present in our data which is removed from the data.

RESULTS & FINDINGS

Descriptive Statistics

Dimension reduction was conducted, and the variables loaded on the seven constructs demonstrate the descriptive statistics of the constructs. Table 2 displays descriptive values of a mean value ranging from 3.1 to 4.5 and a standard deviation score in the range between 0.49-0.69. For the constructs CEW and LWE mean value is less than other latent variables depicting the responses have less level of understanding for it as compared to others the point that can provide the researchers to further the explore the two constructs in detail to find out the causes.

Table 2

Descriptive statistics of the variables

	N	Minimum	Maximum	Mean	Std. Deviation
SHV	480	2.82	5	4.5	0.526
CPL	480	2.27	5	4.279	0.503
TMC	480	2	5	4.307	0.694
CEE	480	2	5	4.307	0.694
CCEK	480	1.5	5	3.194	0.491
LLS	480	1.43	5	3.247	0.602
MGL	480	2.17	5	4.383	0.613

*SHV= Shared Vision, CPL = Continuous Professional Learning, TMC= Team working and Collaboration, CEW= Culture of Enquiry and Exploration, CCEK= Culture of Collecting and Exchanging Knowledge, LLS =Learning from Larger system, MGL =Modeling and Growing Leadership

Results of Factor Analysis

Kaiser – Meyer -Olkin` test is done to find out the data if it suits to run for factor analysis whereas Bartlett`s test is done to find out the correlation in the data is sufficiently strong to run the factor analysis test.

Table 3

KMO and Baertlett` -Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	32188.627
	df	1953
	Sig.	0.000

Table 3 above depicts Kaiser – Meyer -Olkin (KMO) value is greater than 0.60 indicating that sample is adequate enough to run EFA. Bartlett`s Test of Sphericity value is less than 0.05 indicating that the correlational matrix is not an identity matrix. There is some correlation present between each item within factors. Extraction communalities are estimates of the variance in each variable accounted for by the components. The extraction communalities all are greater than 0.4 which is acceptable.

Table 4 below displays the items and factor loadings for the rotated factors, with loadings less than 0.5 omitted to improve clarity. All items are loaded onto their respective factors and heavily loaded (>0.5) interpreting construct and converging validity has been ensured. No cross loading of the items has been observed in RCM table. Hence discriminating validity has been ensured (Tharenou et al. 2007). Varimax rotation is used to obtain Rotated Component Matrix. The goal of varimax rotation is to maximize the variance of factor loadings by making high loadings higher and low ones lower for each factor (Tabakhnick & Fidell, 2007). When running the model, three variables have been loaded with a factor loading score of

less than 0.5 which is eliminated from the model (Cheung, et al., 2023). Therefore, it is interpreted that out of 69 items 7 factors have been developed for the study for which 65 variables are retained.

Table 4
Rotated Component Matrix

	Components						
	1	2	3	4	5	6	7
MGL9	0.884						
MGL11	0.867						
MGL10	0.86						
MGL3	0.848						
MGL5	0.813						
MGL4	0.807						
MGL2	0.791						
MGL8	0.764						
MGL7	0.76						
MGL12	0.738						
MGL6	0.71						
MGL1	0.702						
SHV7		0.893					
SHV8		0.89					
SHV4		0.878					
SHV9		0.847					
SHV2		0.843					
SHV6		0.827					
SHV1		0.818					
SHV10		0.773					
SHV3		0.746					
SHV5		0.724					
TMC6			0.868				
TMC10			0.855				
TMC9			0.847				
TMC8			0.83				
TMC11			0.811				
TMC3			0.802				
TMC5			0.775				
TMC1			0.757				
TMC4			0.752				
TMC7			0.735				
CEE 7				0.842			
CEE 9				0.838			
CEE 6				0.817			
CEE 8				0.797			
CEE 5				0.79			
CEE 4				0.787			
CEE 3				0.774			
CEE 2				0.75			
CEE 1				0.74			
CCEK4					0.931		
CCEK 2					0.876		
CCEK7					0.856		

CCEK 5	0.85
CCEK 6	0.842
CCEK 3	0.833
CCEK 1	0.803
CCEK 8	0.65
CPL8	0.86
CPL6	0.844
CPL5	0.839
CPL4	0.802
CPL3	0.762
CPL7	0.753
CPL10	0.635
LLS6	0.864
LLS3	0.856
LLS2	0.836
LLS7	0.74
LLS4	0.678
LLS1	0.667
LLS5	0.527
Extraction Method: Principal Component Analysis.	
Rotation Method: Varimax with Kaiser Normalization.	
a. Rotation converged in 7 iterations.	

Reliability and Validity

Table 5 shows the results of Composite Reliability (CR), Average Variance Extracted (AVE) and Fornell Lacker criterion separately for each of the five latent constructs.

Table 5

Convergent and Discriminant Validity

	CR	AVE	MSV	MaxR(H)	CCEK	MGL	SHV	TMC	CEE	CPL	LLS
CCEK	0.918	0.587	0.086	0.933	0.766						
MGL	0.954	0.634	0.252	0.957	0.002	0.796					
SHV	0.949	0.65	0.238	0.955	0.115	0.488	0.806				
TMC	0.934	0.589	0.162	0.938	-0.001	0.297	0.264	0.767			
CEE	0.943	0.649	0.252	0.949	0.057	0.502	0.379	0.402	0.806		
CPL	0.917	0.557	0.154	0.933	-0.069	0.162	0.233	0.392	0.29	0.746	
LLS	0.892	0.547	0.086	0.917	0.294	-0.139	-0.095	-0.243	-0.094	-0.218	0.74

[CR= composite reliability, AVE=average variance extracted, MSV= maximum shared square variance, MaxR (H) = maximum reliability]

Reliability Measures of all 69 variables calculated to be 0.937, and above 0.9 shows high level of reliability and strong internal consistency among different indicators in questionnaires (Taber, 2018). The AVE of each of the four constructs is greater than 0.50 showing a good convergent validity (Hair, et al. 2011). Also, each construct has very good composite reliability (CR \geq .70). To ensure discriminant validity Fornell Lacker Criterion (FLC) is used. This method compares the square root of the average variance extracted (AVE) with the correlation of latent constructs (Hair, et al., 2021). A latent construct should explain better the variance of its own indicator rather than the variance of other latent constructs. Therefore, the square root of each construct's AVE should have a greater value than the correlations with other latent constructs (Hair, et al., 2021). FLC table indicates that all the diagonal values are greater than its off-diagonal values. It suggests that according to Fornell and Larcker (1981), the discriminant validity has been ensured.

Predictive Validity and Multiple Regression Analysis

The model measurement was further assessed for its predictive validity therefore study was continued to find out the effects of school when transformed into a learning organization on job satisfaction level. Some other controlled variables are also considered in the study like designation, qualification and number of years associated with current organization (Conway & Brinner, 2002, Ma & MacMillan, 1999; OECD, 2014). Job satisfaction is assessed by two dependent variables “I am professionally rewarded in my institution” [Job satisfaction 1] and “My school is a learning place for me” [Job satisfaction 2]. The dependent variables were assessed by independent variable “School as a learning organization” which is computed by taking average of all seven constructs (Kools et al., 2020). Regression analysis was done in order to find out the association and effects of school as a learning organization on job satisfaction of the teachers and other staff members. Results of regression analysis are shown below.

Table 6
Regression Analysis

	Beta	t	Sig
Job Satisfaction 1	0.559	14.735	0
Job Satisfaction 2	0.587	15.845	0

Table 6 above depicts p-value less than 0.05 reporting that that there is a significant relationship between school as learning organization and job satisfaction level of teachers and other academic staff.

Discussion

The reconceptualization of school into a learning organization was initially proposed by Marsick and Watkins (2003) that provided a scale for transformation of school into a learning school which has potential positive effects on learning. The works of Kools and Stoll (2016) proposed a 69 variable model that can explicitly explain the characteristics of school as learning organization. Current study has applied the instrument to find out the perceptions of school leaders and teachers about school as a learning organization. Data interpreted and analyzed revealed the model to be appropriate in context of Karachi Pakistan revealing that all academic staff believe on 5 constructs, but they are unsure about their beliefs for the two constructs which is learning from larger system and embedding systems for collecting and exchanging knowledge. Further the predictive validity of the model is measured by finding out the effect of making school as a learning organization on job satisfaction level of academic staff. The survey items that were developed for job satisfaction were adapted from (Kools et al., 2020). Results showed that they are positively associated with each other and when we convert school into a learning organization it can have positive effects on job satisfaction level. But adjusted R squared values for the model came out be less (0.311 & 0.343) indicating the moderate line responses that has attained with the two constructs.

The overall findings resulted in a scale of 65 variables instead of 69 original variables that can be used as a model for converting the school into a learning organization. Construct validity was examined by item correlation and expected reliability after deleting each item, for this none of the items need to be deleted, yes for convergent validity three variables have less than 0.5 factor loading scores therefore there are removed from the model. The tool when measured in the present context, educators agreed on five constructs of learning organization, for remaining two constructs still work is needed in future or as mentioned CFA is required further to validate and hence to find out the generalizability of the study. Hence study unfolds the following model that can serve to work to develop the model of school as a learning organization.

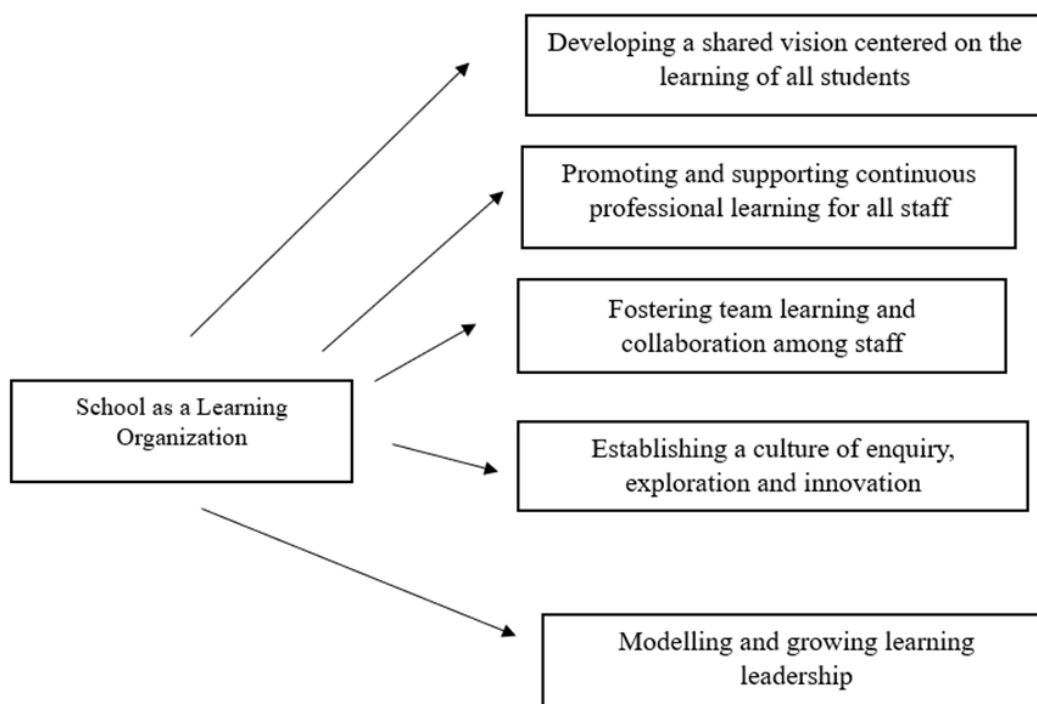


Fig. 2. Developed Model of School as a learning Organization

Present study shows that teachers and school leaders are aware of the necessary components to support the school's status as a learning organization. However, Pakistani schools have not been able to raise the standard of teaching. Perhaps they lack the willingness to bring change and the necessary practical abilities to do so. Furthermore, since university-school collaboration is the weakest component in the context of this research, constructs 6 and 7 were not seen to be as significant as the other five. Notwithstanding their shared goal of raising the standard of education, universities operate independently. The study suggests that in order for school leaders and staff to successfully execute the model under examination, they require practical and contextual assistance. As a consequence, the goal of work-based teacher learning may provide significant e-learning outcomes for students.

CONCLUSION

Overall study was directed to measure the validity and reliability of the tool of school as a learning organization in context of Pakistan. In order to improve quality of education, it is important to focus on professional development of teachers. Formal as well as informal ways also need to be applied to enrich teacher's learning. School as a learning organization is a model if practices in schools can help in professional development of teachers thereby improving the quality of education. The tool when measure in our context proved useful with many constructs, mentioning two constructs for which educators are not agreed on it providing us the direction to further work on these or to make language of the tool easily comprehensible for all educators in our context. Predictive validity of the tool is also measured, and the tool is further investigated by regression analysis to find out the effects of school as learning organization on job satisfaction of the staff. Job satisfaction is one of the important elements in every institution and every organization wants their employ to be satisfied here. Literature shows sufficient issues related to job satisfaction. The study has also led towards the dimension that school can easily achieve job satisfaction by transforming their culture into a learning organization that can provide a safe and productive environment for all of their staff members.

Recommendations

In future, in order to validate further it is required to perform confirmatory factor analysis that can prove the model that either it is sustained on seven constructs or their needs some revision in dimension reduction that is carried through exploratory factor analysis. The study needs to be generalized by applying the scale into the broader context to get enrich results to get a tool that could be applied in

all contexts so that every school can utilize this to develop them into a learning organization. It is also suggested to conduct interviews with educators to get comprehensible and detailed insights into how they see and believe their school is a learning organization.

Implications

Study has several implications on society as it has provided a validated model through which schools can transform themselves into a learning organization. It is significant to educators, policy makers, scholars and other stakeholders in modelling their school into a learning organization. It has also evaluated the relationship of school as a learning organization into job satisfaction and the relationship found out to be significant. The study has explored the characteristics of variables of learning organizations, in addition also theoretically proved the model proposed by Kools and Stoll (2016) that is helpful for the educators to cultivate the culture of learning organizations in their school that help them to grow professionally.

The scale is very helpful for the policy makers and assessment developers to assess the working of the school as a learning organization and to identify potential areas which need improvement. This could help policy makers to make plans for the betterment and to overcome the weaknesses so that school could fully work as a learning organization. In the absence of proper scale, administration and other policy makers could not get proper insights into it.

Competing Interest

The authors had no competing interests.

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