VALIDATION OF DIMENSIONS OF LEARNING ORGANIZATION QUESTIONNAIRE (DLOQ) FOR THE INDIAN IT INDUSTRY

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ABSTRACT

Purpose: A Learning Culture helps organizations be more competitive and effective in their output. It plays a key role in Employee Engagement and retention. The focus on this has increased manifold with the advent of new technologies at a substantial pace. Adaptation of AI is another development driving organizations to rethink their strategies for upskilling and reskilling their employees. With the advent of time, we have new learning approaches and practices in place. Watkins, Yang, and Marsick (1997) developed DLOQ i.e. Dimensions of the Learning Organization Questionnaire. It is a widely used tool to understand the Learning Organization and its various dimensions. This tool has been accepted and used in at least 15 countries worldwide. Kim (2015) did a detailed analysis of the past uses of DLOQ and suggested further research on the topic. Our literature review found few studies in India where DLOQ was used. However, we did not find a study validating the tool for the Indian IT industry. This study aims to bridge this gap. While validating the instrument from an Indian perspective, it attempts to clarify some past research questions about the validity and use of the instrument.

Methodology: We researched the Indian IT Sector with close to 400 respondents to understand their perception of the Learning Culture in their organization.

Major Findings: As per our findings DLOQ is an instrument that can be used in the Indian IT Sector and is reliable. We did not find any issues with the construct validity of the instrument.

Implications: DLOQ can be used to assess their current standing and progress over time while highlighting the areas that may need intervention. Further, practitioners can use it to understand the relationship with other variables.

Keywords: Learning Culture, DLOQ, Learning Organization.

Introduction

Technology advances are frequent in current times. They change the way we work and the skills we need. In less than five years the skills reach their average half-life. This is less than two and a half years, in some tech jobs (Tamayo et al., 2023). These findings lead us to focus on topics related to unlearning, learning, reskilling, and upskilling. The advent of technologies like Artificial Intelligence has further brought the topic of learning to the limelight. The recent Pandemic has also played a key role in bringing the focus back on learning, Studies have established that the prevalence of a Learning culture in the organization enables them to enhance their products and services and respond to change faster. This improves employee engagement and thereby retention. The link between learning culture and the incorporation of technological innovations in day-to-day work activities is positive. This makes it important for organizations to understand how employees perceive the Organization's Learning Culture. They need a measure to know where they stand and interventions in which areas will help them in their journey to create a Learning Culture.

DLOQ has been used in over fifteen countries. It has been used in different sectors, including healthcare, education, manufacturing, services, etc. Kim et al (2015) pointed out that researchers reported problems with the tool. These issues are related to multicollinearity and lack of discriminant validity. He further observed that EFA was not done before CFA while validating the instrument. While many subsequent studies have re-validated the instrument, they have been conducted specific to the country and sector. The literature review also validates that the impact of the variables is significantly different across different countries and sectors.

Knowledge Transfer and Knowledge Sharing are key in the Indian IT industry. Organizations have a larger need to measure their learning culture from time to time to see if they are making progress. Further, they need to understand impact of the different variables relevant to their culture. Our study aims to bridge this gap. We intend to validate the DLOQ specifically for the Indian IT industry in the current context. In the process we also attempt to provide answers to some limitations pointed out regarding the validation of the tool.

The scope of our study shall be targeted at medium and large-segment IT Organizations, which have mature people practices. The paper contributes to the previous work on understanding Learning culture in organizations. It validates the use of DLOQ in the Indian IT

Industry. It provides empirical evidence to help HR practitioners and leaders sustain a culture of Learning in the organization, measure it, make interventions, and see progress. It will also help future research in the specific sector when they attempt to understand the effect of Learning Culture and other elements that impact the performance of the organization.

Literature Review

Learning Organizations, Organization Learning and Learning Culture.

In an interview in 2020, Dr. Senge reiterated that the original definition still applies. One of the first proponents of the learning organization, he identifies a learning organization as one where people continually enhance their capabilities to create results that are desired. Further, wide-ranging and new thoughts are promoted, and collective aspirations are sought for. In these organizations, people learn continuously (Senge, 1990, as cited in Reese, 2020).

The learning organization continuously learns and transforms itself (Watkins, Marsick 1993). It is 'characterized by total employee involvement in a process of collaboratively conducted, collectively accountable change directed towards shared values or principles.' (Dirani, 2009)

It is essential to distinguish The Learning Organization from Organizational Learning. Organizational Learning refers to the learning experiences as a collective group to acquire knowledge and develop skills (Yang et al., 2004). In turn, Organizational learning implies that individuals who are part of an organization are learning. In a Learning Organization, the knowledge is located both, within and even out of the organization. On the other hand, in Organizational Learning the knowledge is accumulated within. (Xie, 2019).

Learning Culture is an environment that is created by Organization Learning and The Learning Organization. Culture percolates through the organization. It facilitates learning through individual experiences when they work as a team and collaborate. (Xie, 2019).

Learning Culture creates an environment and system that promotes larger learning opportunities. It facilitates discussions and, creates an environment that facilitates collaboration among the members (Jung et al., 2021). (Marsick & Watkins, 2003) opine that a large part of learning happens informally on the job when members collaborate and have dialogues. Building a learning climate and fostering a learning culture is important to support learning. Leaders and key people build Climate and Culture. They influence and motivate others to learn having learned from their own experience. They help to create an environment that encourages people and shapes their expectations towards learning. Measuring and rewarding success helps foster the learning climate.

The Significance of Learning.

A Learning Organization encourages and supports the continuous learning of its members. This, in turn, has a positive influence on productivity, innovation, and a desire to be a lifelong student. All these, in turn, help the organization to develop a competitive advantage and become better than other organizations. (Alrashidi et al., 2023)

Several empirical studies have been done in the past, which involve understanding Learning Culture and Learning Organization characteristics and their relationships with outcomes related to the job like organization commitment, performance, intent to leave, job satisfaction, productivity, etc. (Egan, Yang, and Bartlett 2004; Ellinger et al. 2002; Wang 2005 as cited by Dirani, 2009). They have found strong correlations between the two. Organizational learning culture affects motivation to transfer and Job satisfaction. (Ellinger et al., 2002) established that the financial performance of a firm has a significant effect on the concept of learning organization. A study in India, (Khanna & Rana, 2022) validated an impactful association between Learning culture and Employee Engagement. While studying Dutch organizations, (Iwaarden, 2022) found that learning culture can partially accommodate for critical skill loss on legacy applications.

Measuring Learning Culture

Dimensions of Learning Organization(DLOQ) tool by Watkins and Marsick has been used to measure Learning Culture. (Yang, 2003). At the same time, it is widely used as a measure of Learning Organization (Yang et al., 2004). The Learning Organization and Learning culture have the same constructs. As highlighted by (Marsick & Watkins, 2003) an organization's culture, systems, climate and other variables that may affect individuals learning can be measured using DLOQ.

Evolution of DLOQ

Watkins and Marsick (1993, 1997, as cited by Ju et al., 2021) proposed seven dimensions of the learning organization. The first of this dimension which signifies learning through work and opportunities is called "continuous learning". The second which signifies acquiring skills through discussions, listening, questioning and feedback is called "dialogue and inquiry". Working and learning together is the third dimension called "Team Learning". The systems including the technology that facilitates and captures training are referred to as the fourth dimension and called "embedded systems". The fifth dimension is "Empowerment." It indicates giving responsibility and sharing ownership. The dimension that connects knowledge across systems is the sixth dimension and is called "System Connections". Lastly one of the key drivers of organizational change i.e. "Strategic leadership" is identified as the seventh dimension. (Watkins & O'Neil, 2013) outlined the evolution further. According to them, the authors observed that Learning Organization is a journey, not an end in itself. During their research journey, they tackled the challenge of determining the changes that an organization needs to make to raise it to the level it wants to be. This resulted in the development of the DLOQ questionnaire. The questionnaire could act as a benchmark. One can use this to find their current status as against the organization's action points. Further, it could help scholars and practitioners to study different organizations and examine links between learning culture and other variables. DLOQ consists of two measures of organizational performance along with the other dimensions of a learning organization.

The initial version of DLOQ had 43 Questions included in a consistent item format. The Item started with 'In My Organization……'. This design helped to retain the organization as the focus. A six-point, Likert scale, was used in the tool. This helped to spread the responses and avoided concentration to the mean. It forced the respondents to take a definitive stance rather than be neutral. The results were to be interpreted by studying the average responses and the variation and range in response. All dimensions were important and one has to look for themes and patterns by comparing the answers within the category.

(Yang, 2003), developed a 21-item shorter form of DLOQ and also a very concise one of 7 Items. DLOQ with 43 measurement items was meant to be used as a diagnostic tool as it provides a detailed understanding of learning culture. The seven dimensions helped to identify the areas of impact. The 21-item shorter form was to act as a research instrument. It could be used to determine relationships among different variables concerning Learning Culture. The variables could be related to organization performance, knowledge transfer, capacity of the organization, etc. The concise 7-item one could be used in broader studies that have a large number of variables. In these cases, the research objective could be to examine the relationships between the other variables and the learning culture His studies contain evidence of internal consistency and construct reliability.

Validation of DLOQ

(Marsick & Watkins, 2003) while providing the rationale and explaining the concepts behind the development of DLOQ maintain that they do not claim DLOQ to be the only and best measure. They call for further research in the area, of translation beyond six languages. The sentiment is echoed further by (Yang, 2003), who observed that building a valid instrument is a longer process that takes time and iterations. Further, the evidence provided regarding the validity does not conclude that the DLOQ is a perfect tool. According to him, the correlations among individual dimensions are high. They weaken the evidence related to discriminate validity. He has suggested conducting more empirical studies. The idea was to examine the relevant dimensions and their nature and at the same time he recommends theoretical analysis.

(Yang et al., 2004) who validated the instrument highlighted the sampling method followed for instrument development. He recommends using random sampling from different and diverse organizations as against the convenient sampling strategy which was adopted to develop the instrument.

Meanwhile, researchers and practitioners were regularly using DLOQ. The areas most examined included the impact of The Learning Organization on Organization Performance, Financial Performance, and the dimensions of Organizational commitment like Job satisfaction, organizational culture, and interpersonal trust. Innovation, Organizational Change, and employee impact include leadership, career development, knowledge creation, collaborative capacity, etc (Watkins & O'Neil, 2013). This also called for the validation of the instrument from time to time.

(Watkins & Dirani, 2013) conducted a meta-analysis of historical data from 28 companies across five countries based on 7984 responses, which used DLOQ or a part of it. They conducted an EFA and found that it generated factors comparable to the original one. CFA was used to confirm the hypothesized factor structure and examine construct validity. Collinearity diagnostics revealed that there were no issues with multicollinearity. The study results show that, based on national culture, the patterns of high and low dimensions vary significantly. They conclude that DLOQ has achieved high reliability across dimensions and the instrument holds good across languages, cultures, and different types of organizations.

(Kim et al., 2015) noted the problems reported by other researchers. One of the problems was regarding multicollinearity among the variables. The other is related to lack of discriminant validity. They reviewed the use of DLOQ in published research and identified the following gaps.

a) DLOQ was validated with only CFA based on a strong theoretical framework. However, the authors have maintained that this was a model and not a theory.
b) Exploratory Factor Analysis (EFA) should have been done before doing the CFA (Confirmatory Factor Analysis), especially since the base is a model, not a theory.
c) DLOQ-A (21-Items) scale was developed without Exploratory Factor Analysis.

d) A meta-analysis of data should be done along with the CFA, especially since DLOQ is a self-scoring instrument. The covariance between factors or correlation metrics that were reported in previous studies should be analyzed further to determine the validity of DLOQ.
e) The Sample data should be split into two groups and EFA and CFA done on different groups to determine the capability of the model to be able to predict correctly.
f) In the literature reviewed, EFA was done for only 8% of cases and they reported incoherent factor extraction.
g) Leadership for Learning was added as a seventh dimension to DLOQ and was not part of the original framework.
h) Based on the reports regarding multicollinearity and the inconclusive discriminant validity it is possible that DLOQ is not measuring multidimensionally as it should.

(Kortsch & Kauffeld, 2019) observed good psychometric properties in the Version of DLOQ which was translated to German. Within the sub-samples, the structure having seven dimensions showed a good fit. In their analysis, they found that the seven factors were distinct. They did not agree with the findings of (Kim et al., 2015) who felt that DLOQ was measuring unidimensionally. At the same time, they also opine that 7-Item DLOQ-S could have a unidimensional construct.

(Ju et al., 2021) used metadata to do an exploratory factor analysis (EFA) followed by a confirmatory factor analysis (CFA). They were examining the construct validity of DLOQ, mainly the subdimensions (seven nos) and their relationship. This was in line with the recommendations (Kim et al., 2015). They took the empirical data from the last fifteen years of research on DLOQ. They included studies after the validation of the first scale in 2003. Their analysis arrived at the inference that seven dimensions constituted DLOQ.

(Yang, 2003) suggested the two-factor mode in DLOQ. In an interesting variation (Ju et al., 2021) did a meta-analysis and conducted CFA to evaluate the measurement Model. He used a one-factor model and a three-factor model instead of the traditional two-factor model. The table below gives the difference. They concluded that the model with three factors explains the data better.

One Factor	Three Factor	Two Factor
Factor 1 a) Continuous learning b) Dialogue and inquiry c) Team learning d) Embedded system e) System connection f) Empowerment g) Strategic leadership	Factor 1 - Individual a) Continuous learning b) Dialogue and inquiry Factor 2 - Group c) Team learning Factor 3 - Organization d) Embedded system e) System connection f) Empowerment g) Strategic leadership	Factor 1 - People a) Continuous learning b) Dialogue and inquiry c) Team learning d) Empowerment Factor 2 - System e) Embedded system f) System connection h) Strategic leadership

Research Gap

The Literature review shows us how DLOQ evolved and matured over a period. The model has been consistently validated over time and used very often. Our review includes the critiques of DLOQ and the shortcomings highlighted. At the same time, some researchers have acknowledged the shortcomings and conducted further studies to understand and validate the instrument, its use, etc. This brings us to the question as to why we need to revalidate this instrument when there seems to have been enough work done in this area. We summarize a few below to substantiate our rationale for this study.

Diversity - National & Sectoral:

Countries have their own culture, local regulations, and ethical standards. Even within a country, we could have a lot of diversity. Similarly, organizations have their own cultures

and different structures for making decisions. The use of measurement tools in the Korean context without adequate validation could lead to unwanted effects (Jang, Kim, & Kim, 2001; Sin, O, & Park, 1999; Song, 2000, as cited by Song et al., 2009).

Just as we have diversity in the countries, we do see diversity across different sectors. (Jamali et al., 2009) highlight the sectoral difference between the banking and IT industries largely arising due to the nature of work, structure, and environment. Sectors like Education and healthcare would have a lot of differences from manufacturing organizations.

A meta-analysis of data collected from 28 different countries from five different nationalities was done by (Watkins & Dirani, 2013). They observed that difference across national cultures. The overall strength of learning culture is more or less the same but there are differences in patterns of high and low based on the national culture.

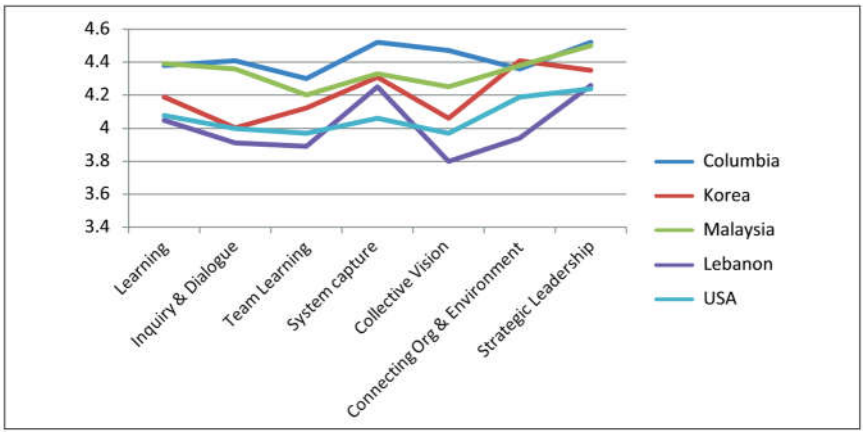

Figure 1: Means by Nationality Source: (Watkins & Dirani, 2013)

This presents a compelling reason for us to conduct a study in the Indian context. More specifically, the IT sector. This sector is growing rapidly as more global companies have a presence in India and high uncertainty in their businesses (Budhiraja et al., 2019).

Direct Variable

One of the recommendations of (Kim et al., 2015) for directions for future research on DLOQ was to validate DLOQ or a modified version as an instrument to measure the Direct Variable.

Version

(Ju et al., 2021) has suggested studying the three versions of DLOQ and identifying the empirical differences between them. While (Yang et al., 2004) have suggested the context of use, (Kortsch & Kauffeld, 2019) suggested that future researchers should study the applicability of the different versions. i.e. which version is best suited for a specific situation and condition. Further, they recommend identifying considerations that may help future researchers select the best version of DLOQ for their study.

Construct Validity

Yang (2004) is against accepting the structural model identified in his study as applicable to all cases. In his view, among different levels of learning organization, there could be other networks that may have correlations. (Kim et al., 2015) recommended studying the construct validity in an international context and more specifically pointed out the need to examine discriminant validity. (Ju et al., 2021) found a shortage of multi-level analysis in the DLOQ empirical literature. In their study in the Indian context, (Awasthy & Gupta, 2012) also highlight that there is a need to establish that the seven dimensions are discriminate. They observe this although they find convergent validity of the seven dimensions of the DLOQ. Lastly, the changing times have brought substantial changes in the methods of learning (Online), self-learning, micro-learning concepts, etc,. and this needs to be validated in our context.

Benchmarking

(Yang, 2003) emphasizes that one of the purposes of the instrument is to compare and benchmark the learning culture of a unit or organization. The comparison could be within an industrial section or outside. It could also be among several business units or departments within an organization. They could also be dispersed geographically. These comparisons will

help build the next steps in understanding the gaps in performance and build on the strengths that learning culture brings. This was substantiated by the work by (Tuncali Yaman, 2020), which established the need for benchmarking studies across sectors. Our study aims to contribute to this area.

Table 1 is a compilation of the studies which have been done in the last few years. These include those who have studied DLOQ exclusively or used DLOQ in their studies. We have included only those where quantitative research was conducted. The sample size, Instrument used, the country, and sector have been identified, which will help us establish the need for this study. In the table, we have referred to the 43-Item version as A, the 21-Item version as B, and the 7-Item one as C.

Author	**Country**	**Sector**	**Sample Size**	**Ver-**	**Other Measures Studied**
(Zainal & Masrek, 2023)	Malaysia	Defense	40		
(Alrashidi et al., 2023)	S Arabia	Hospital	117	A	
(Kiani et al., 2022)	Iran	Agriculture	379	B	
(Kullan et al., 2022)	Malaysia	Education	50	A	
(Chaudhuri et al., 2022)	Bhutan	Education	201	B	
(Goula et al., 2020)	Greece	Hospitals	380	A	
(Kortsch & Kauffeld, 2019)	German	Crafts	856	B	
(Bhaskar & Mishra, 2017)	India	Mfg	204	A	
(Kumar, 2016)	India	Healthcare	315	B	
(Leufvén et al., 2015)	Nepal	Healthcare	230	B	
(Subedi, 2023)	Nepal	Service	389	C	Learning Agility, Employee Engagement, Employee Performance
(Khanna & Rana, 2022)	India	Mfg	42	B	Employee Engagement
(Tripathi & Kalia, 2022)	India	IT	379	A	Supportive Work Env. Organisational Performance Learning Agility Organisational innovation
(Jung et al., 2021)	Korea	Mfg and Service	256	C	Authentic Leadership Leader-Member Exchange Innovative Behaviour

Author	Country	Sector	Sample Size	Ver-	Other Measures Studied
(Kim, 2021)	US	General	560	A	Adaptive Performance
(Srirama et al., 2020)	India	IT	243	Part	Social Capital
(Budhiraja et al., 2019)	India	IT	444	A	Org Size, Risk-taking abilities.
(Siddique, 2018)	UAE	Cross-Sector	254	B	Knowledge Performance Financial Performance Strategic Orientation HR Perceived Org Support

Table 1: List of studies on/using DLOQ in recent times.

If we see Table 1, we will find studies in the Indian IT Sector context. However, these studies have not independently established the construct validity of DLOQ.

Research Objective

In line with the gaps identified above, we intend to Validate the 21-Item DLOQ concerning the Indian IT Sector. At the same time, we also aim to validate the instrument for its 'construct validity' in line with the findings of other researchers who have called for studies of this kind.

Research Method & Analysis

For our research, the 21-Item DLOQ in the English language was adopted. The questionnaire was sent to people who work in the IT Sector in India. Google Forms was used to collect data. We received 391 responses which were used to analyze data.

Cronbach Alpha for the complete instrument was found to be 0.939. This is above the acceptable value of 0.6 indicating the reliability of the overall instrument is in the acceptable range. We conducted an Exploratory Factor Analysis (EFA) on the data. The Kaiser-Meyer-Olkin (KMO) Test is a widely accepted measure to check if the data is suitable for Factor

Analysis. We got the KMO value as 0.727 indicating that the data is good for factor analysis. Since Bartlett's Test of Sphericity is low, our dataset is considered suitable for factor analysis. Our analysis indicates the presence of seven factors that are similar to the original DLOQ instrument. Table 2 and Table 3 below provide the output of Factor Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.409	20.997	20.997	4.409	20.997	20.997	2.748	13.084	13.084
2	2.919	13.900	34.896	2.919	13.900	34.896	2.711	12.908	25.991
3	2.403	11.443	46.340	2.403	11.443	46.340	2.707	12.889	38.880
4	2.237	10.650	56.990	2.237	10.650	56.990	2.365	11.262	50.143
5	2.083	9.917	66.907	2.083	9.917	66.907	2.308	10.990	61.132
6	1.682	8.011	74.918	1.682	8.011	74.918	2.297	10.940	72.073
7	1.558	7.418	82.337	1.558	7.418	82.337	2.155	10.264	82.337
8	.563	2.680	85.016						
9	.469	2.232	87.248						
10	.427	2.032	89.280						
11	.394	1.877	91.157						
12	.313	1.489	92.646						
13	.273	1.300	93.946						
14	.261	1.244	95.190						
15	.212	1.008	96.198						
16	.178	.847	97.045						
17	.168	.801	97.846						
18	.139	.662	98.508						
19	.129	.612	99.120						
20	.107	.512	99.632						
21	.077	.368	100.000						

Extraction Method: Principal Component Analysis.

Table 2: Factor Analysis - Total Variance

If we observe Table 2 we find that we have seven components that have an Eigenvalue greater than 1. The seven factors are cumulatively responsible for 82% of the variance. Thus, seven components effectively represent all the components highlighted by 21 questions. Besides, none of the individual components contribute more than 40% of the variance on its own, indicating that none of the components overlap.

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
CL 1		.935					
CL 2		.951					
CL 3		.938					
DI 1			.939				
DI 2			.935				
DI 3			.935				
TLC 1				.908			
TLC 2				.864			
TLC 3				.788			
ES 1						.888	
ES 2						.854	
ES 3						.867	
EMP 1	.937						
EMP 2	.953						
EMP 3	.925						
SC 1							.800
SC 2							.815
SC 3							.851
SL 1					.810		
SL 2					.873		
SL 3					.876		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Table 3: Factor Analysis - Rotated Component Matrix

Rotation helps to reduce the number of factors on which the variables that are being investigated have high loadings. Table 3 shows the values, and we can verify that all the values are above 0.5. The components are interpretable and have strong positive factor loading.

We did a Confirmatory Factor Analysis (CFA) to test our model. Table 4 below is the output of analysis. The different factors correspond to the following.

a) CL - Continuous Learning.
b) DI - Dialogue and Inquiry.
c) TLC - Team Learning
d) ES - Embedded Systems

e) EMP - Empowerment.
f) SC - System Connections.
g) SL - Strategic Leadership

	CR	AVE	Cronbach Alpha	CL	DI	TLC	ES	EMP	SC	SL
CL	0.941	0.843	0.917	0.918						
DI	0.942	0.845	0.923	0.156	0.919					
TLC	0.859	0.671	0.820	0.078	0.208	0.819				
ES	0.845	0.646	0.803	0.084	0.098	0.085	0.804			
EMP	0.948	0.858	0.927	0.027	0.118	0.188	0.125	0.926		
SC	0.79	0.558	0.743	-0.04	0.072	0.292	0.01	0.221	0.747	
SL	0.847	0.651	0.803	0.089	0.175	0.35	-0.011	0.211	0.27	0.807

Table 4: Reliability and Validity (Gaskin & Lim, 2016)

Our analysis shows the value of Composite Reliability (CR) is higher than the threshold of 0.7. A high composite reliability value signifies that all the items consistently measure the same construct. Hence we conclude that the model has composite reliability. Convergent validity is generally understood by checking the Average Variance Extracted (AVE). The value of AVE for all the variables is greater than 0.5 indicating that the model has convergent validity. Convergent validity shows that different variables that measure the same concept are related as expected. Internal consistency is a measure used to check if different variables that aim to measure the same construct produce identical results. One of the methods to measure internal consistency is Cronbach alpha. Our results show the value of Cronbach Alpha to be 0.7 for all the variables. Basis this, we confirm that the model has internal consistency. Lastly, we shall check on discriminant validity. It identifies if the items which form the construct are distinct from one another. To arrive at discriminant validity the value of the construct correlation is verified with the square root of AVE. Table 4 depicts that for each variable, the correlation value is less than the square root, i.e. for CL 0.918 is more than the rest of the column. Thus, the model has discriminant validity.

We have adapted Table 5 from (Uedufy, January 20, 2024) to list the values we have seen for the various tests of the Model of Fit. As can be observed from the below Results

indicate a good fit. The value of AGFI is not in the acceptable range, but this can be ignored as GFI indicates an acceptable fit.

Explication	**Reference**	**Results**	**Comments**
Chi-square/ Degree of Freedom (CMIN/DF)	(Kline, 1998) (Marsh & Hocevar, 1985)	2.828	Less than 3 indicating acceptable fit.
Goodness of Fit Index (GFI)	(Kline,2005) (Hu & Bentler, 1998)	0.9	Greater than or equal to 0.9 is acceptable
Adjusted Goodness of Fit Index (AGFI)	(Tabachnick & Fidell, 2007)	0.862.	Less than the acceptable value of 0.9
Comparative Fit Index (CFI)	(West et al., 2012) (Fan et al., 1999)	0.945	Greater than 0.9 is acceptable.
Root Mean Square Error of Approximation (RMSEA)	(Hooper et al., 2007)	0.069	Less than 0.08 is considered a reasonable fit.
Root Mean Squared Residual (RMR)	(Diamantopoulos & Siguaw, 2000) (Steiger, 2007)	0.035	Less than the acceptable fit of 0.05
Standardized Root Mean Squared Residual (SRMR)	(Diamantopoulos & Siguaw, 2000)	0.0442	Less than 0.05, is the acceptable fit.
Critical N (CN)	(Joreskog & Sorborn, 1996)	396	Greater than 200 is considered acceptable.

Table 5: Model of Fit

In summary, our exploratory factor analysis resulted in seven dimensions that conform to the original view. Confirmatory analysis and subsequent model fit analysis indicate a good fit. We do not see issues related to discriminant validity or internal consistency as was pointed out in previous studies. This leads us to the conclusion that DLOQ can be considered as a valid instrument to be used in the Indian IT Industry.

Discussion and Conclusion

The Importance of Learning in Organizations has grown in recent times. It is associated with innovation, work efficiency, performance, retention, job satisfaction, and engagement among many others. This in turn leads to a larger focus on learning in an organization. Hence, we need tools to measure employee perception regarding this aspect. DLOQ has been available for a long duration. Further, it has been validated and tested in many different countries over time. Studies established the need to revalidate it in the local context. This study validated DLOQ in the Indian context for the IT Industry. We examined the questions posed by other researchers questioning the construct validity, and discriminant validity. There were recommendations to first conduct an Exploratory Factor Analysis and follow it up with a Confirmatory Factor Analysis. We went by the recommendation and examined DLOQ for reliability, internal consistency, and discriminant validity. Our studies show that DLOQ consists of seven dimensions in line with the original model. Further, we did not come across any issues related to the Reliability or the Validity of the instrument. We conclude that DLOQ is relevant for the context of the Indian IT Sector and can be used as a tool to get an idea of the current standing and intervention areas which could help them make a difference in this area. The study also contributes to the benchmarking of data for further studies.

This is a perception-based study and relies on self-reporting. As seen in such cases, there are chances of bias which may creep into the outcomes. Biases could be due to tenure of job or personal experiences, attitudes etc. This is one of the key limitations that we see in this study. To keep the study relevant, we avoided collecting background data. Hence it is difficult to correlate the outcome by looking at the current practices to validate the data. Longitudinal studies to substantiate the conclusions could be taken up by future studies.

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