Assessing Learning Organization Dimensions and Demographic Factors in Technical and Vocational Colleges in Iran

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Abstract

People in organizations have critical key roles in creating sustainable development. Assessing the level of learning organization dimensions and differences based on demographics such as age and education level were purposes of the study. Performing the study in four provinces of Fars, Khuzestan, Boushehr, and Kohgilouyeh and Boyerahmad in Iran, all full and part time lecturers in Technical and Vocational Colleges were participated in the study. Survey method and ANOVA analysis were employed to collect and analyze data. The findings showed that the perception levels of respondents were rated from low, moderate to high with significant differences based on education level and age. The results can be evaluated as useful information and guidance for educational leaders and administrators in management of higher education institutions.

Key Words: Learning Organization Dimensions, demographic variables, Technical and Vocational Colleges, Iran

1. Introduction and Problem Statement

The globalization has made education industry not to be able to respond quickly and flexibly to the increasing expectations and unpredicted and changing environments. Many believe that to overcome today's difficulties in education systems; learning organization is the best choice (Ayupp & Perumal, 2008; Moloi, 2010; Senge, 2006). In a learning organization, people learn how to advance organizational learning through challenging assumptions and existing patterns of behaviors, forecast change, learn to think systematically, and develop processes. They work together to make process improvements that benefit institutional stakeholders such as students, administrators, faculty and staff (Freed, 2001). Learning in organizations with the purpose of making employees to feel empowerment has shown to be a significant factor in organizational successfulness, adaptation to changes and helping organizations to survive longer than their counterparts (Asadi, Ghorbani, & Naderan, 2009; Dirani, 2009; Marsick, 2009; Ortenblad, 2004b; Watkins & Marsick, 2003).

According to Garvin (2000), lack of learning culture makes organizations and individuals simply repeat old practices. The development of learning culture not only helps organization members to create new knowledge, but also helps them remain dynamic too. Learning in organization is really the empowering of the workforce and integrating work with learning in a continuous manner (Bryson, Pajo, Ward, & Mallon, 2006; Ortenblad, 2004a). Building learning organization has shown a lot of benefits including: increasing the levels of innovation regarding the processes, products, technological application, helping to create, analyze, store and disseminate knowledge, providing skills, competences, and climate to satisfy customer requirements (Alas & Sharifi, 2002; Ayupp & Perumal, 2008; Marquardt, 2002). Learning organization has been the focus of attention as a subject of study, research, training and development in organizations since 1390s. The learning organization has the potential to help organizations to survive and remain competitive in the globalization era.

Many organizations in various countries of the world have preferred to adapt learning organization, because of its profound impacts on professional and skill development of their employees (Alam, 2009; Jamali & Yusuf, 2009). Top-level managers in organizations have realized that to increase efficiency, improve customer service, provide defect-free products, and achieve organizational objectives, learning organization is the best choice (Ayupp & Perumal, 2008; Jamali & Yusuf, 2009; Watkins & Marsick, 1993). However, learning organization literature reveals that most research in the past have been done in business companies (Senge, 2006). Few researches can be found to show the application of learning organization in educational settings together with the impact of demographic variables on learning organization (Tseng, 2010; Wang, 2005). Therefore, this raised the question whether the learning organization model has the capacity to be conducted in educational contexts to provide a roadmap for future research. The organizational context for this study was Technical and Vocational Colleges (TVCs) in Iran.

2. Technical and Vocational Colleges

In line with Iran's push towards a comprehensive development plan, TVCs have focused their efforts to develop technical and professional trainings in all fields to provide skilled and competent human resources of both boys and girls for governmental and private sectors (Mehralizadeh, 2005; Veisi, 2010). Despite their great importance, they have not been the focus of attention in relation to research and study of new theories of organizational development (Asadi, et al., 2009; Hamdhaidari, Agahi, & Papzan, 2007). In addition, the quality, potential and ability of academic members are essential characteristics for guarantee the successfulness of the educational systems as well as the development of the society. Lecturers as the spin of educational institutions have significant roles in the development of TVCs. They are key players in the education system, bear heavy responsibility of educating students, play critical role in advancing economic and technological development through educating human resources, provide professional consultations, conduct academic researches, participate in decision making process and preserve high level of institutional standards (Awang, Ahmad, & Zin, 2010; Chughtai & Zafar, 2006). Thus, analyzing their needs from the point of view of learning new knowledge and skills are important issues which should be considered in the management of the educational institutions. However, research regarding perception and knowledge level of lecturers in TVCs is scarce.

Moreover, the literature of learning organization reveals that the concept of the learning organization has received much attention in organizational studies; however, educational institutions have not fully attributed learning organization practices (Alam, 2009; Yang, Watkins, & Marsick, 2004). White and Weathersby (2005) reported some impediments including challenges of strategy, structure and culture, as well as academic culture clashes that may prevent educational institutions to become learning organizations. In this regard, the concern is whether these institutions have the ability to create a learning culture to help their staffs to develop their knowledge, skills and attitudes.

3. Learning Organization Dimensions

Learning organization theory has been studied through different models since 1390s. Senge (1990) defined learning organization as "organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to learn together" (p.3). Watkins and Marsick (1993) stated that learning organization is an organization that learns continuously and transforms itself by total employee involvement in a process of jointly conducted and collectively responsible change directed towards shared values. Watkins and Marsick, (1993) introduced seven action imperatives that construct the design of their learning organization model. According to their comprehensive model (Ayupp & Perumal, 2008; Dirani, 2009; Dymock & McCarthy, 2006; Kumar & Idris, 2006; Redding & Catalanello, 1994; Song, Kim, & Kolb, 2009) the learning organization provides individual, team and organizational learning opportunities through seven action imperatives. Based on Watkins and Marsick's (1993) conceptualization, they have been defined in Table 1.

Accordingly, to be innovative and act effectively in managing the organizations, managers need to provide continuous learning opportunities for all organization members. Several researchers have proven that those organizations which give emphases to learning and employee empowerment have come out more successfully, more adaptive to changes and survive longer than their counterparts. Learning in organization is really the empowering of the workforce and integrating work with learning in a continuous manner (Bryson, et al., 2006; Ortenblad, 2004a).

In a learning organization, every individual's contribution is important to the life and well-being of the organization (Argyris & Schon, 2002; Ayupp & Perumal, 2008; Hiatt-Michael, 2001). Despite the importance of learning organization, little research can be found in Iranian context particularly in educational settings. The following sections provide some information of methodology, findings and recommendations of this study.

4. Research Methods

A quantitative survey method was employed to collect data. The research design consisted of a self-report questionnaire to evaluate lecturers' perceptions on learning organization dimensions.

4.1Research Sample

All full and part time faculty lecturers of TVCs from four mentioned provinces were chosen as the statistical population of the study. G-power statistical method was employed to determine the sample size. Proportional stratified sampling and simple random sampling method were utilized to collect data. Out of 310 questionnaires delivered to the participating colleges for distribution, 295 were completed and returned, yielding a response rate of 95.16%.

4.2 Instrument

Dimensions of Learning Organization Questionnaire (DLOQ) developed by Watkins and Marsick (1996), was employed. The DLOQ measures respondents' perceptions on seven learning organization dimensions. The dimensions describe actions or practices by individuals, teams, leaders, and the organization as a whole to create a learning organization. The DLOQ contains 43 items. Each statement was measured on a scale of 1-5, ranging from "1" for "almost never" and "5" for "almost always". The DLOQ was translated into Persian using the forward- then-back translation approach (Chen, Holton, & Bates, 2005). Several studies have shown strong reliability and validity levels for the DLOQ (Asadi, et al., 2009; Basim, Sesen, & Korkmazyurek, 2007; Hernandez & Watkins, 2003; Watkins & Marsick, 1997; Yang, et al., 2004). Demographic items including level of education and age were added to measure basic demographics.

4.3 Validity and Reliability

The initial consultation was performed with three professional researchers in Malaysia to validate the English version of DLOQ. They judged content, clarity in meaning of items, construct and face validity of DLOQ as adequate. To ensure the content, items, and face validity of Persian version were adequate, a panel of five lecturers were employed in Iran. They judged DLOQ instrument adequate with minor modifications. The reliability coefficient, Cronbach's Alpha ranged from .79 for (continuous learning) to .84 for (system connection) showed appropriate. Overall, the Alpha Coefficient was .92.

5. Profile of Respondents

Demographic results showed that out of 295 lecturers participated in the study, the majority was male 208 (70.5 %) and 87 (29.5%) were female. For marital status, 234 (79.3%) of the respondents were married and 61 (20.7%) were single. In terms of education level, 261(89.4%) of the respondents were master and below and 34 (11.5%) had a doctorate degree. For employment type, the results showed that majority of lecturers were part time 172 (58.3%) and 123 (41.7%) were full time.

6. Results

To analyze data, both descriptive analysis (mean, standard deviation, frequency and levels) and inferential analysis (One-way ANOVA and Tukey test) were employed to answer research questions two and three. In order to categorize data based on three levels of low, moderate and high, the following process has been utilized. Based on five point liker scale of the DLOQ, the lowest possible mean score is one and the highest possible mean score is five, so the subtraction is four. To calculate the range, four is divided by three (low, moderate and high) the result is 1.33. Therefore, the lowest is one while the highest for low level is 2.33. The moderate level is 2.34 to 3.66 and the high level is 3.67 to 5.

Research question1: What is the perception level of lecturers in Learning Organization Dimensions?

Findings in Table 2 indicates that the lecturers' perception in dialogue and inquiry was higher with a mean rating of M=3.78 and SD=.41. Lecturers' perception in strategic leadership was lower than dialogue and inquiry with M=3.72 and SD=.49.

More than half (56.3%) of the lecturers rated they possess a high level perception, 47.3% indicated moderate and none rated low in perception of dialogue and inquiry, whereas some 49.8% of lecturers reported that they possess a high level of perception in strategic leadership, 50.2% moderate and none rated low. These results pointed to the levels of development of TVCs at individual and organizational level. The lower level of perception was reported for system connection with M=3.40 and SD=.53, followed by embedded system with M=3.43 and SD=.55. Lecturers have rated moderate in perception of system connection dimension with 69.5% rated moderate, 27.1% high and 3.4% low. The mean rating score of M=3.47, with SD=.57 in collaboration signifies that this dimension could be further improved, whereas more than two thirds (64.1%) of lecturers rated moderate, 32.8% rated high and 3.1% rated low in this dimension. Findings indicated that lecturers demonstrated moderate to high perception of learning organization dimensions. One possible explanation for TVCs being high in mean scores of seven learning organization dimensions is that the lecturers are involving subjects such as research, teaching, learning and guiding students which cause them to improve and develop their knowledge, skills and experiences continuously. Another possibility is related to the fact that educational leaders of these institutions try to create the best situation for developing, improving and enhancing their staffs' ability in all fields to be accepted as a branch of higher education ministry.

Research question 2: Are there differences in lecturers' perception towards learning organization dimensions based on education level?

The results of ANOVA in Table 3 disclosed that there was significant difference in respondents' perception in learning organization dimensions based on doctorate, master and bachelor degrees. The results of Tukey test as a pairwise comparison test showed that the significant differences were between doctorate degree holders and master and bachelor degree holders. Those with doctorate degrees showed higher perception in learning organization dimensions than master and bachelor degree holders. Similarly, there were significant differences between master degree holders and bachelor degree holders in perception of learning organization dimensions. Those with master degrees had higher perception in continuous learning and dialogue and inquiry dimensions than bachelor degree holders. No significant differences were observed between master and bachelor holders in perception of collaboration, embedded system, empowerment, system connection and strategic leadership.

Research Question 3: Are there differences in lecturers' perception towards learning organization dimensions based on age?

The results of ANOVA in Table 4 revealed that there were significant differences in perception of dialogue and inquiry, system connection and strategic leadership among the respondents of four age groups (< 29 years, 30-39, 40-49 and >50 years). No significant differences were reported in respondents' perception in continuous learning, collaboration, embedded system and empowerment. The results of Tukey test showed the significant difference in perception of dialogue and inquiry for < 29 age group with the other three age groups (30-39, 40-49 and > 50 years). Age group < 29 had lower perception in dialogue and inquiry than the other age groups. Similarly, in perception of system connection, < 29 age group displayed lower perception than 40-49 age groups. For strategic leadership, those in the age of > 50 had higher perception than the other three age groups.

6.1 Discussion and Conclusion

The DLOQ results revealed in collaboration, embedded system, empowerment and system connection lecturers have rated moderate. It means that theses dimensions can be improved. The highest and the lowest mean scores were for dialogue and inquiry (M=3.78) and system connection (M=3.40) respectively which pointed to the individual and organizational levels. Since the inquiry and dialogue dimension reflects an organization's efforts in creating a culture of questioning, feedback and experimentation, it can be concluded that TVCs are successful in creating and developing this dimension. In other words, lecturers provide their colleagues with correct feedbacks, listen to their points of view before they start talking, are encouraged to ask "why" regardless of hierarchies, ask others' opinions on their viewpoints and spend most of their times on receiving their colleagues' trust. System connection dimension has been rated in the lowest place signify that it could be further improved. Though the moderate perception level of system connection is reasonable, Watkins and Marsick (1996) stated that training global leaders, providing virtual networks, and providing computer data bases are various strategies that can be used to connect the institutions to the environment. The results indicate that TVCs have given more priority for learning and development at individual level than organization and team level of learning.

One possible reason is that development of knowledge and skills of board of lecturers in higher education institutions are on the shoulder of academicians than higher institutions. Pertaining this, Dearlove (2002) stated that academics recognize no boss, choosing to see themselves as individual entrepreneurs, display little desire for collective action. This result is also consistent with Asadi, Naderan and Ghorbani' results (2009) and Veisi's (2010) study who found that faculty members showed openness to new ideas from staff, encouraged to ask question the status quotes and give open and honest feedback to each other. The results regarding collaboration (team learning) revealed that lecturers have rated this dimension in the moderate place. Watkins and Marsick (1996) stated that collaborative atmosphere of learning in organizations foster and develop job related skills. The collaborative efforts cause each member of the organization shares knowledge and experience with each other. The findings pertaining collaboration are in line with White and Weathersby's (2005), Bui and Baruch (2010) statements that academics are highly individualistic in their work and seek to reach personal development. Baruch and Hall (2004) also stated that individual learning among academics may occur via conferences, working with PhD students, self learning, learning at work and learning through peers. Based on a cross-cultural study, Alavi and McCormick (2004) stated that Iranian organizations face some problems in team learning, system thinking and developing shared visions.

Since there have been few researches studying how demographics can impact learning organization dimensions, whether demographic compositions characterize learning organization dimensions or not remains unknown (Tseng, 2010; Wang, 2005). The results revealed that demographics had different perceptions of learning organization dimensions. In terms of education level, there were significant differences in perception of learning organization dimensions among doctorate, master and bachelor holders. Comparison of mean scores of doctorate, master and bachelor holders revealed that doctorate lecturers scored the highest. It signifies that doctorate lecturers pay more attention to the activities performed regarding learning organization dimensions in TVCs. It can be concluded that the higher education level, the higher mean scores of learning organization dimensions in TVCs. These results are in line with Tseng's (2010) findings who reported that there were significant differences in learning organization practices among respondents with doctoral, master, two year college, senior high school and junior high school degrees, except in system connection dimension in Taiwan. Similarly, these findings are in line with Wang, Yang and McLean's (2007) findings and Wang (2005) results in China. However, these results are not in line with Lim's (2003) findings in Korea, except in continuous learning.

The age differences in respondents' perception of their college as a learning organization produced significant differences in there out of seven learning organization dimensions, namely dialogue and inquiry, system connection and strategic leadership. This result was consistent with Pimapunsri, (2008) findings based on five age groups of front line subordinates of department management in five star hotels in Bangkok in dialogue and inquiry, empowerment and embedded system. The findings of this study were also in line with Wang's (2005) findings and Wang, Yang and McLean's (2007) study among 919 employees in nine companies both in China. Lim's (2003) study in Korea showed no significant differences in perception of learning organization dimensions based on three age groups which is inconsistent with the finding of the current study. It is concluded that the older respondents tended to have higher perceptions of their colleges as learning organization than the younger respondents.

In sum, the results of this study should be interpreted with recognition of the following limitations. Firstly, the sample of the study was lecturers in one educational region among lecturers, future studies can be conducted in other higher education institutions among administrators and other staffs. This study has theoretical and empirical contributions to the body of knowledge; provides educational leaders with information to be used when preparing educational programs, as well as, help educational leaders be aware of the current organizational situation in order to improve their colleges. In addition, the results help educational leaders develop and sustain a culture conducive to learning and adapt it as a means of survival and success. For researchers, this study contributes to the understanding of the learning organization theory locally, nationally and internationally and further research. Moreover, it also suggests a better understanding of learning organization dimensions in educational settings based on age and education level which, more programs can be developed.

References

Alam, M. F. (2009). Learning organization and development of woman managers in Pakistan. [Article]. *Human Resource Development International, 12*(1), 105-114.

Alas, R., & Sharifi, S. (2002). Organizational learning and resistance to change in Estonian companies. *Human Resource Development International, 5*(3), 313-331.

Alavi, S. B., & McCormick, J. (2004). A cross-cultural analysis of the effectiveness of the Learning Organization model in school contexts. *The International Journal of Educational Management 18*(7), 408-416.

Argyris, C., & Schon, D. (2002). *Organizational Learning II: Theory, Method and Practice*: Addison Wesley Publishing, Reading, MA.

Asadi, H., Ghorbani, M. H., & Naderan, M. (2009). The Relationship Between the Learning Organization and Productivity in Iran Physical Education Organization. *World Journal of Sport Sciences, 2*(3), 160-164.

Awang, Z., Ahmad, J. H., & Zin, N. M. (2010). Modelling Job Satisfaction And Work Commitment Among Lecturers: A Case Of UiTM Kelantan. *Journal of Statistical Modeling and Analytics, 1*(2), 45-59.

Ayupp, K., & Perumal, A. (2008). A learning organization: exploring employees' perceptions *Management & Change, 12*(2), 29-46.

Baruch, Y., & Hall, D. T. (2004). The academic career: a model for future careers in other sectors? *Journal of Vocational Behavior, 64*(2004), 241-262.

Basim, H. N., Sesen, H., & Korkmazyurek, H. (2007). A Turkish Translation, Validity and Reliability Study of the Dimensions of the Learning Organization Questionnaire. *World Applied Sciences Journal 2 (4): , 2007, 2*(4), 368-374.

Bryson, J., Pajo, K., Ward, R., & Mallon, M. (2006). Learning at work: organisational affordances and individual engagement. *Journal of Workplace Learning, 18*(5), 279-297.

Bui, H., & Baruch, Y. (2010). Creating learning organizations: a systems perspective. *The Learning Organization, 17*(3), 208-227.

Chen, H. C., Holton, E. F., & Bates, R. (2005). Development and Validation of the Learning Transfer System Inventory in Taiwan. *Human Resource Development Quarterly, 16*(1), 55-84.

Chughtai, A. A., & Zafar, S. (2006). Antecedents and Consequences of Organizational Commitment Among Pakistani University Teachers. *Applied Human Research Management, 11*(1), 39-64.

Dearlove, J. (2002). A continuing role for academics: the governance of UK universities in the post-Dearing era. *Higher Education Quarterly, 56*(3), 257-275.

Dirani, k. M. (2009). Measuring the learning organization culture, organizational commitment and job satisfaction in the Lebanese banking sector. *Human Resource Development International, 12*(2), 189-208.

Dymock, D., & McCarthy, C. (2006). Towards a learning organization? Employee perceptions. *The Learning Organization 13*(5), 525-537.

Freed, J. E. (2001). Why Become a Learning Organization? *About Campus, 5*(6), 16-21.

Garvin, D. A. (2000). *Learning in action: a guide to putting the learning organization to work*: Boston: Harvard Business School Press.

Hamdhaidari, S., Agahi, H., & Papzan, A.-H. (2007). Teaching and Learning Participation in the College of Agriculture at Razi University, Iran. [Article]. *Quality in Higher Education, 13*(2), 131-143.

Hernandez, M., & Watkins, K. E. (2003). Translation, validation and adaptation of the Spanish version of the modified Dimensions of the Learning Organization Questionnaire. [Article]. *Human Resource Development International, 6*(2), 187-196.

Hiatt-Michael, D. B. (2001). Schools as Learning Communities: A Vision for Organic School Reform. *The School Comunity Journal 11*, 113–127.

Jamali, D., & Yusuf, S. (2009). Learning organizations: diagnosis and measurement in a developing country context The case of Lebanon. *The Learning Organization, 15*(1).

Kumar, N., & Idris, K. (2006). An examination of educational institutions' knowledge performance: Analyis, implications, and outlines for future research. *The Learning Organization, 13*(1), 96-117.

Lim, T. (2003). *The relationship among organizational commitment, learning organization culture, and job satisfaction in one Korea private organization.Unpublished Dissertation.*

Marquardt, M. (2002). *Building the learning organization: mastering the five elements for corporate learning. Palo Alto, CA: Davies-Black.*

Marsick, V. J. (2009). Toward a unifying framework to support informal learning theory, research and practice. *Journal of Workplace Learning, 21*(4), 265-275.

Mehralizadeh, Y. (2005). New Reforms in the Management of the University: Transition from Centralized to Decentralized (University- Based Management) in Iran. *Higher Education Policy, 18*, 67–82.

Moloi, K. C. (2010). How can schools build learning organisations in difficult education contexts? *South African Journal of Education, 30*, 621-633.

Ortenblad, A. (2004a). The learning organization: towards an integrated model. *The Learning Organization, 11*(2), 129-144.

Ortenblad, A. (2004b). Toward a Contingency Model of How to Choose the Right Type of Learning Organization. *Human Resource Development Quarterly, 15*(3), 347-350.

Pimapunsri, P. (2008). Factors affecting Learning Organization Culture and hotel managers' Leadership Styles in Thailand. *Educational Journal of Thailand, 2*(1), 34-43.

Redding, J. C., & Catalanello, R. F. (1994). *Strategic readiness: the making of the learning organization. San Francisco: Jossy-Bass*.

Senge, P. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*: Doubleday Publishers, New York, NY

Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization*: Vintage.

Song, J. H., Kim, H. M., & Kolb, J. A. (2009). The effect of learning organization culture on the relationship between interpersonal trust and organizational commitment. [Article]. *Human Resource Development Quarterly, 20*(2), 147-167.

Tseng, C. C. (2010). *The Effects of Learning Organization Practices on Organizational Commitment and Effectiveness for Small and Medium-Sized Enterprises in Taiwan. Unpublished Doctral Disserteation* The University of Minesota.

Veisi, H. (2010). Organizational Learning in the Higher Education Institutions (A Case Study of Agricultural and Natural Recourses Campus of University of Tehran). *International Online Journal of Educational Sciences, 2*(1), 21-36.

Wang, S. (2005). *Relationship among organizational learning culture, job satisfaction and organizational commitment in Chinese state-owned and privately-owned enterprised, Unpublished Dissertation. University of Minnesota. .*

Wang, X., Yang, B., & McLean, G. N. (2007). Influence of demographic factors and owner ship types upon organizational learning culture in Chinese enterprises. *International Journal of Training and Development, 11*(3), 154-165.

Watkins, K. E., & Marsick, V. J. (1993). *Sculpting the learning organization Lessons in the art and science of systematic change*: San Francisco: Jossey-Bass.

Watkins, K. E., & Marsick, V. J. (1996). *In action: Creating the learning organization.Alexandria, VA: American Society for Training and Development.*

Watkins, K. E., & Marsick, V. J. (1997). *Dimensions of learning organization (DLOQ) [survey] Warwick, RI: Partners for the Learning Organization.*

Watkins, K. E., & Marsick, V. J. (2003). *Making learning count! Diagnosing the learning culture in organizations Thousand Oaks, CA: Sage*.

White, J., & Weathersby, R. (2005). Can universities become true learning organizations? *The Learning Organization, 12*(3), 292-298.

Yang, B., Watkins, K. E., & Marsick, V. J. (2004). The construct of the learning organization: dimensions, measurement, and validation. *Human Resource Development Quarterly, 15*(1), 31-56.

Tables:

Table 1: Dimensions of Learning Organization Applied in TVCs

Dimensions	Definitions
Continuous Learning	The extent of developing learning in organization by learning how to learn new knowledge, values and skills and creating continuous learning opportunities through experiments for personal and career development on the job.
Dialogue & Inquiry	Dialogue is the extent to which culture of organization allows members to have open communication with open minds to talk, discuss, and explain their experiences and skills. Inquiry involves questioning about the views of others yet does not attack the individuals.
Collaboration	The degree to which an organization tries to design work for organizational members to achieve a unified action on common purposes, have shared vision and personal mastery to exchange their views and ideas and learn how to work collaboratively.
Embedded System	The extent of creating organizational capacity through both high and low technology systems and finding ways to maintain what is learned.
Empowerment	The process of enabling organization members to participate in policy making, to know how to get something done, to assess their needs, to influence others and to create a shared and collective vision. This process continues to get feedback from organization members to recognize the gap between the current status and the new vision.
System Connection	The extent to which an organization has open systems to connect the organization to its external and internal environment to help organization members to see the impact of their work on the entire organization and think worldwide.
Strategic Leadership	Refers to organizational leaders' competence to think strategically, being models, champion, support learning and energize organization to create change, and develop collective vision to help organization members to move in the new direction.

Table 2: Descriptive Statistics and Learning Organization Dimensions

Descriptive Statistics	Mean	Std. Deviation	Levels	Frequency (%)		
				High	Moderate	Low
Continuous Learning	3.69	.46	High	169 (57.3%)	126 (42.7%)	--
Dialogue & Inquiry	3.78	.41	High	166 (56.3%)	129 (47.3%)	--
Collaboration	3.47	.57	Moderate	97 (32.8%)	189 (64.1%)	9 (3.1%)
Embedded System	3.43	.55	Moderate	77 (26.1%)	200 (67.8%)	18 (6.1%)
Empowerment	3.53	.53	Moderate	105 (35.6%)	190 (64.4%)	--
System Connection	3.40	.53	Moderate	80 (27.1%)	205 (69.5%)	10 (3.4%)
Strategic leadership	3.72	.49	High	147 (49.8%)	148 (50.2%)	--

Note: Low (1-2.33), Moderate (2.34- 3.66), High (3.67-5)

Table 3: One-way ANOVA for Learning Organization Dimensions by Education Level (n=295)

Variables	Education Levels	n	Mean	SD	F	*p*
Continuous Learning	Doctorate	34	4.01	.42	13.973	.000*
	Master	224	3.68	.45		
	Bachelor	37	3.46	.36		
Dialogue and Inquiry	Doctorate	34	4.00	.36	20.542	.000*
	Master	224	3.80	.39		
	Bachelor	37	3.44	.33		
Collaboration						
	Doctorate	34	3.77	.52	6.848	.001*
	Master	224	3.46	.57		
	Bachelor	37	3.29	.53		
Embedded System						
	Doctorate	34	3.67	.62	4.628	.011*
	Master	224	3.42	.54		
	Bachelor	37	3.28	.49		
Empowerment						
	Doctorate	34	3.92	.49	12.278	.000*
	Master	224	3.46	.51		
	Bachelor	37	3.59	.50		
System Connection						
	Doctorate	34	3.67	.49	8.041	.000*
	Master	224	3.39	.53		
	Bachelor	37	3.18	.46		
Strategic leadership						
	Doctorate	34	4.02	.46	10.058	.000*
	Master	224	3.71	.48		
	Bachelor	37	3.52	.44		

*Significant level at $p<.05$ df= (2, 292) SD=Standard Deviation

Table 4: One-way ANOVA for Learning Organization Dimensions by Age (n=295)

Variables	Age	n	Mean	SD	F	*p*
Continuous Learning	< 29 years	45	3.60	.44	2.210	.087
	30-39	108	3.64	.45		
	40-49	125	3.74	.46		
	>50 years	17	3.84	.44		
Dialogue and Inquiry	< 29 years	45	3.59	.45	4.103	.007*
	30-39	108	3.81	.39		
	40-49	125	3.80	.39		
	>50 years	17	3.90	.46		
Collaboration						
	< 29 years	45	3.47	.52	2.189	.089
	30-39	108	3.42	.58		
	40-49	125	3.47	.57		
	>50 years	17	3.81	.67		
Embedded System						
	< 29 years	45	3.41	.47	1.413	.239
	30-39	108	3.40	.59		
	40-49	125	3.44	.53		
	>50 years	17	3.69	.56		
Empowerment						
	< 29 years	45	3.51	.53	1.492	.217
	30-39	108	3.57	.53		
	40-49	125	3.47	.52		
	>50 years	17	3.71	.52		
System Connection						
	< 29 years	45	3.18	.57	3.427	.018*
	30-39	108	3.41	.52		
	40-49	125	3.45	.51		
	>50 years	17	3.52	.48		
Strategic leadership						
	< 29 years	45	3.70	.54	2.650	.049*
	30-39	108	3.69	.47		
	40-49	125	3.71	.48		
	>50 years	17	4.04	.44		

*Significant level at p <.05 df= (3, 291) SD=Standard Deviation