Developing and validating a scale for measuring the characteristics of learning organization

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Abstract

In today's world, a new form of organization that is known as learning organization is being developed to maintain competitive advantage in quick confrontation of challenges. In these organizations, emphasis will be placed on processes such as team building, learning, strategies to meet future challenges, reduction of middle management levels, and application of learning processes such as Benchmarking and experimentation. The present study is an attempt to construct and validate a scale to measure the characteristics of learning organization. To this end, first a comprehensive review of literature was performed to identify the variables of each section and design the conceptual framework of the research. After designing the framework and collecting the required data through a questionnaire, the impact of each learning organization characteristic, including human resource characteristics, leadership characteristics, mission / strategy characteristics, organizational culture characteristics, organizational learning and organizational design characteristics, on learning organization assessment was investigated. The

statistical population of this research consisted of 89 managers and directors of Iranian Aluminum Company. Data analysis was performed through partial least squares method by means of the Smart PLS software. The findings of this study indicate that all characteristics extracted from previous research and articles could also be recognized and accepted as characteristics of learning organizations at **IRALCO**. Finally, according to the results, a scale and predictive model was introduced as a bench mark for measuring the characteristics of learning organization at **IRALCO**.

Key words: learning organization, leadership, organizational culture, strategy, human resources characteristics

1. Introduction

Today, rapid changes in environmental factors give rise to more complexity and ambiguity and cause serious challenges in organizational management. In such situations, the use of old command and control paradigms that emphasize on specialization and efficiency, and lead to creation of multi-divisional organizations have been shown to be inadequate (James, 2003).

A new form of organization that is known as learning organization is being developed to maintain competitive advantage for quick confrontation of challenges. In these organizations, emphasis will be placed on processes such as team building, learning, strategies to meet future challenges, reduction of middle management levels, and application of learning processes such as Benchmarking and experimentation. In these organizations, the focus on learning is known as a strategy to meet future challenges. In other words, as the world becomes more interconnected, businesses become more complex and dynamic, and organizations have to adopt more sophisticated and dynamic methods to face this, and learning organizations have the ability to do this (Neefe, 3002). Organizational learning is a powerful driver for the success of many of contemporary companies (Garvin, 1993), the fierce rivalry has broken the old boundaries and dictated new rules. In the meantime, the learning organization model is especially apt for those who are seeking ways to conceptualize organizational structures and processes to foster continuing responsiveness, effectiveness, and efficiency (Dever, 1997). Academicians and

industry practitioners unanimously agree that organizational learning contributes to the success of organizations in the competition (Yang et al., 2018)

In today's world, the lifespan of many institutions is not even about half the normal life of a human being. The result of a survey carried out by Shell Company in 1983 suggests that one-third of the companies that were listed as the world's top 500 companies in 1970 have already disappeared. In this study, it has been estimated that the average life span of the largest firms has been less than 40 years. According to Peter Senge, the main problem the contemporary organizations are facing is that they are often not able to identify the threats and their effects as a whole and fail to create alternatives and solutions; in other words, organizations have difficulties in learning. When plagued with learning deficiencies, even the most successful organizations will not be able to fully manifest all their capabilities, even if they manage to survide (Senge, 1385).

Organizational learning is not a new concept. This concept was first introduced in 1990s by Peter senge. This concept relies on an attitude, according to which, organization consists of employees who are skilled in the creation, acquisition and transfer of knowledge. Such employees will be able to help their organization develop open discussions, meet ambiguities and have systematic comprehensive thinking. Such learning organizations will be able to adapt to unpredictable environmental factors faster than their competitors (Garvin, 2008).

In order to develop into learning organizations, organizations apply a four-step process: information identification and creation, interpretation and exchange of information, practical application of information / creation and institutionalization of knowledge. Implementation of such a process requires an appropriate organizational framework. Organizations that create special characteristics in their leadership, human resources, design, culture as well as mission and strategy, provide the ground for developing into a learning organization (Gorbani Zadeh and Mashbaki, 1384). It should be noted that organizations don't develop into learning organizations accidentally, but development into learning organizations requires planning and targeted efforts. In addition to planning for issues such as the improvement and development of the organization, Managers and leaders of organizations need to make precise and targeted planning to enhance the level of learning. In order to achieve this goal, they need to know to what extent their organization has managed to develop the characteristics of a learning organization so that they can plan for moving from the present situation towards the desired learning situation. Therefore,

in order to get to know about the extent to which they have developed into a learner organization, they need a proper tool for measuring the characteristics of learner organization. Therefore, it is very necessary for every organization to have a comprehensive model for assessing organizational learning so that they can measure the level of organizational learning and, make the future the organizational plans accordingly. (Ghorbanzinade, 1388)

According to the afore-mentioned points about the importance of organizational learning as well as the assessment of organization's ability, researchers are expected to conduct various studies in this field and present comprehensive models to measure organizational learning capability. However the review of literature in this area show that a few domestic and foreign studies have been conducted in this area and that these studies are not comprehensive enough.

The Iranian aluminum Company (**IRALCO**), as the first and most important producer of aluminum ingots in Iran, has been planning to develop into a learning organization in recent years, and has taken some relevant measures in this regard. However, one of the concerns the company's top executives are currently dealing with is the extent to which the organization has managed to succeed in this direction, in other words, the company's executives want to know if the company has succeeded in turning into a learning organization. And if so, to what extent has the organization been able to develop into a learning organization?

Therefore, theoretical gap on the one hand and the importance of the aluminum industry as one of the key industries as well as the need for organizational learning in the companies of this industry, on the other hand, led us to construct and validate a scale to measure the characteristics of the learning organization in **IRALCO** and seek an answer to the following key question: whish model is the optimal model for measuring the characteristics of the learning organization in **IRALCO**? In other words, the general goal of this research is to create a scale for measuring the characteristics of learning organization in **IRALCO** and to validate the scale.

2. Theoretical foundation and review of literature

The concept of learning dates back to 1900, when Frederick Taylor suggested that **learning** can be **transferred** to **employees** and subsequently **improve** the **efficiency** of organizations. But Richard Ciyert and James March (1963) were the first to put together two terms of learning and

organization, and introduced learning as an organizational phenomenon in literature (Fatrhang et al., 1390). Different thinkers have provided different definitions of learning. In all of these definitions, behavioral change, as the most fundamental pillar of Learning, is described as the process of improving actions through better knowledge and understanding (Fayol et al., 1985)

Organizational learning and learning organization were first introduced in early 1980s. Learner organizations are organizations that renew **themselves continually** and develop **new forces** (MacMillan & Vera, 2004). Probst and Buchel (1997) define Organizational learning as: the ability of an organization as a whole, in discovering the problems and solving them, as well as changing the system of values and knowledge, increasing the capacity for problem-solving and action. According to this definition, the organizational learning process is: a change in organizational knowledge, increasing potential domains, Change in the attitudes of Individuals (Gorelock, 2005). Organizational Learning has different levels and divisions (individual, team and organizational level). In order to better describe organizational learning, we must admit that learning is a dynamic concept that gradually shifts from individual learning to organizational learning. Due to the organizations' need to adapt to environmental changes, the concept of organizational learning is becoming more and more common. Learning is essential for the growth of individuals as it is for the growth of organization, however organizational learning is way beyond the sum of individuals' ability to learn (Denison and Neil, 2000)

In an organization with high levels of organizational learning, individuals continuously increase their ability to create the results they truly desire. Organizational learning makes it possible to develop new and expansive patterns of thinking, set collective aspiration free, and help people continually learn how to learn together. Organizations with such characteristics (by encouraging innovation, knowledge acquisition and capacity development) receive signs from the environment, interpret them, and finally apply them on opportunities (Crossan and Vera, 2004)

Some argue that learning organization is an attitude. Organizational learning is a continuous learning cycle, and no organization can reach a specific point of learning to consider itself a learning organization. On the other hand, organizations can't remain in a stable position of learning and introduce themselves as an active learning organization (Ortenblad, 2002)

The concept of organizational learning from the perspective of Paziuk (2009) is: (A) Organizational learning refers to the capacity of an organization for identifying the need for

change and adaptability and the pursuit of voluntary action. (B) Organizational learning is the result of the interaction of cognitive and social lying in organizational structures, cultures, and operations. C. Organizational learning is the process of change in individuals as well as common attitudes and actions that are influenced by institutions and organizations. When individual and group learning becomes institutionalized, organizational learning occurs and knowledge is embedded in non-human repositories such as routines, systems, structures, culture, and strategy.

According to all the scholars, Peter M. Senge (from MIT University) is the main theorist of the Learning Organization. Peter Senge believes that learning organization is an organization recipient is an organization that continually changes and improves its performance using individuals, values   and other sub-systems, and by relying on the lessons and experiences it gains. In his opinion, the main components of learning organization are:

1. Personal mastery: refers to the discipline of an individual being able to continuously clarify and deepen his personal vision, focus his energies, develop patience, and openly and honestly see reality as it exists. However, few institutions encourage their employees to develop such characteristics within themselves themselves. In addition, a small number of mature human beings actually try to develop their personal mastery.

2. Mental Models: deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action. In most cases, we do not know anything about our mental models and the effect they put on our performance.

3. Shared vision: refers to the ability of a group to form and hold a common picture of a desired future that its members seek to create. One can hardly name an organization that has reached a degree of success without having goals, values   and aspirations deeply ingrained at the institution level.

4. Team learning: team Learning is of vital importance. Because teams, rather than individuals, form the cornerstone of learning in modern organizations. As long as teams do not learn, organizations will not be able to learn.

5- Systems thinking: System Thinking is introduced as the fifth principle. Because this principle integrates rules and combines them in a harmonious structure of theoretical and practical foundations. Presentation of an ideal image of the organization without taking advantage of a Systems thinking, provides beautiful visions of the future. (Senge, 1380)

The goal of all learning organizations is to achieve a desirable and ideal success. Therefore, the following factors are necessary for such organizations:

1. Identification of goals: The first step in all learning organizations is to identify the goal. Because any action taken before Identification of goals is doomed to failure. Goal is a common attitude among the organization's members that is represented at all levels and the organization's top management is responsible for ensuring it.

2- Intellectual leaders: This element is of vital importance in any learning organization because organizations can never succeed without leaders committed to organizational learning. In learning organizations, wise and Transformational leadership is needed to achieve the unanimously agreed goals. Since the learning organization is an innovative and knowledge creating organization, the leader should act in such a way as to create innovation within the organization.

3. Learning and creative staff: learning staff and managers serve as the necessary components of any learner organizations. In learning organizations, individuals need to fully recognize their abilities and develop them.

4. Delegation of responsibilities to employees and training them: In the learning organizations, responsibilities are largely delegated to individuals, people are respected and completely trustworthy. Employee training to help them understand their tasks and delegation of decision-making responsibilities to them makes them develop a sense of belonging and take pride in working in the organization. In this case, people feel very responsible to the organization, will try their best to achieve organizational goals, and will deal with any problem in this regard.

5- Full participation in terms of information: Official data about budget, profits and expenses are provided to individuals. Everyone has the freedom to share information with other people inside the organization.

6. Dynamic models: The learning organization should be equipped with mechanisms that enables them to identify and moderate their mental models towards issues and constantly evaluate them. Thus, for organizations to succeed, they need to have realistic mental models.

7- Employment of science and experience: learning organizations use a combination of science and experience to make better choices. In these organizations, individuals will be able to use their

knowledge and expertise to assess the successful future options and use experience to make a rational and wise decision (Asgari, 1383)

a number of studies have been conducted for design of the scale for measuring organizational learning, these studies include: Islamabad (1388) has used the Wick and **Leon Model** to analyze the organizational learning in higher education institutions (Case Study of Imam Sadiq University). According to this model, in a learning organization, leadership has a clear vision of the future The organization has the ability to provide the necessary plans for the realization and assessment of goals, is sensitive to external and internal information, enjoys creativity and initiative, and can take the necessary actions for realization of the goals and ideas developed in the previous steps. The findings of this research show that Imam Sadegh University has had a good performance in terms of organizational learning (leadership dimension) but has had a poor performance in other areas. In other similar study, Aghdasi and Khakzarbefroubi (2005) investigated the organizational learning capabilities in hospitals, their scale used to measure organizational learning, including 4 dimensions: management commitment, systemic vision, Open space and experimentation and knowledge integration. The findings of this study indicate the high level of knowledge transfer and integration and the low level of management commitment in the organizations under study. In a research entitled "construction and Validation of a Scale to Measure Organizational Characteristics" Ghorbani (1388), identified five main categories of learning organizations characteristics used for designing a scale: these characteristics include: leadership, human resource, organizational design, organizational culture and mission / Strategy. According to the results of this study, the validity of this scale for assessing the level of organizational learning was approved. Zarei (1381) designed a tool based on the twelve characteristics of learning organizations to measure learning capacity in industrial enterprises. According to the findings, the learning capacity of companies is estimated equal to 50%. In addition, Jyothibabu et al. (2010) designed a scale by combining and modifying two scales obtained from the literature to obtain an integrated scale. The researchers integrated learning empowerment and acquired learning (at three levels) as well as organizational efficiency into a single scale This new scale was confirmed after being expert judged by 502 executives of a Thermal Power station of India power distribution company. Chiva et al. (2007) conducted a comprehensive analysis to design a 14-item scale for measuring organizational learning, the scale consisted of 5 dimensions: experimentation, Risk taking, interaction with the

external environment, dialogue and participatory decision making. To test the validity and reliability of the designed scale, the researchers tested it in 9 tile and ceramics manufacturing plants in Spain

In The present study, the reviewed literature and the scales designed by other researchers were used to design a new scale for measuring the characteristics of learning organization in **IRALCO**. This scale is presented in the following model fig. 1).

The research question in this research is: what are the characteristics of learning organizations in IRALCO?
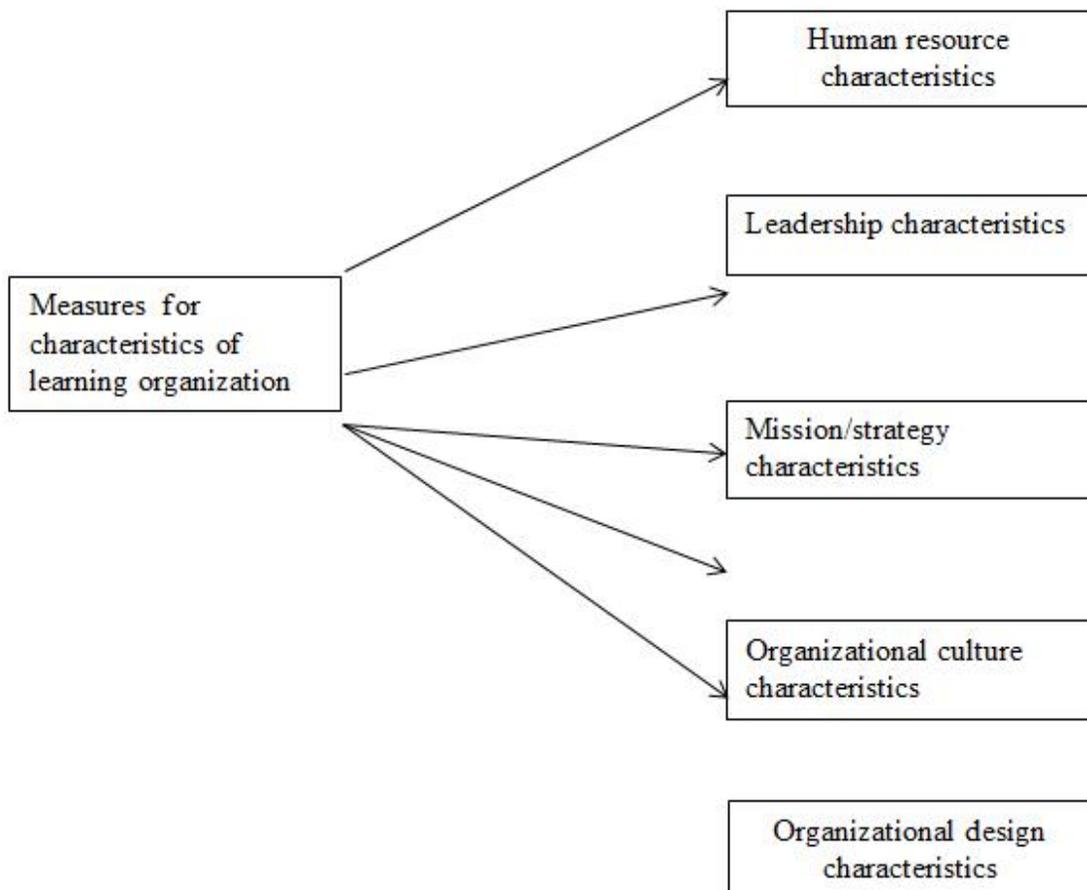

Fig1: the conceptual model of the study

(Derived from Ghorbani zade 1388, Sange 1388, Garvin 1993, Garvin 2008, Ghephart and Marsick 1998)

3. Research methodology

The present study is applied in terms of objective and a non-experimental survey study in terms of data collection. The data collection instrument in this study is a questionnaire. The questionnaire consists of two parts: the first part deals with demographic characteristics (age, gender, work experience, education, etc.) and the second part of the questionnaire deals with the research variables. In this study, first, the characteristics of the learning organization is extracted from the research literature and the exploratory factor analysis is used to develop the initial learning organization characteristics model. The questionnaire consists of 9 questions. The composition of the questions and their reference is presented in table 1. All questions are scored based on the 5-point Likert scale. Data analysis was carried out using structural equation modeling and PLS software.

Table 1- composition of questionnaire questions and their references

variable	Number of questions	items	reference
Leadership characteristics	11	Being Designer, Being Teacher, being Supervisor, Emphasize on Learning, Facilitation of Organization Transformation, seeking Feedback, openness to criticism, admitting mistakes, Empowering Employees, Commitment, System Thinking	Singe, 1991 ;chang & Lee,2007; Hult etal,2003; Goh & Richards,2002
Human resource characteristics	10	Creativity, Innovation, mastery of Jobs, Continuous Improvement, Risk taking, upgrade of Skill, sense of being valuable,	Goh & Richards,2002; Kaplan & Norton, 1996; James,2003; Bennett& Obrien,1996

		Discovery and Application of Capabilities, continuous Education, Transferring Knowledge to Others	
Organizational design characteristics	10	Fitness of Components, comprehensive communication of organization components, effective communication with other organizations, reward system, knowledge sharing, teamwork encouragement, facilitating experimentation, low recognition, decentralization, short organizational pyramid	James,2003; Goh & Richards,2002; Garvin,1993; Senge, 1991
Organizational culture characteristics	7	Supporting experience, human value, preferring customer over employee, non-discrimination, valuation and inquiry, reciprocal trust among employees, value feedback and disclosure	Goh & Richards,2002; James,2003;Tolbert etal, 2002
Mission/strategy characteristics	4	emergence of mission and strategy from scientists and teams, clarity of vision and mission, attracting employee support,	Bennett& Obrien,1996; Senge, 1991; James,2003; Garvin,1993

		creating a sense of responsibility in the staff	
Organizational learning	4	Adaptive learning, predictive learning, single-loop learning, learning through explorations and collection and interpretation of information,	Marquardt,1995; Argyris & Shon, 1978; Daft & Weick, 1984

4.Statistical population, samples and sampling method

The statistical population of this research includes all managers and directors of IRALCO (89 individuals) considering the limited number of statistical population and their accessibility, the entire statistical population was taken as the sample and no sampling was done. Thus, 89 questionnaires were distributed among the population, and a total of 78 completed and valid questionnaires were collected. 10 questionnaires were excluded due to being inadequate. The demographic characteristics of the samples are presented in Table 2.

5.Reliability and Validity

In this study, Cronbach's alpha and combined reliability (CR) were used to measure the reliability of the questionnaire. The minimum acceptable value for these two benchmarks is equal to 0/7. The convergent and face validity were used to assess the validity of the questionnaire. Average Variance Extracted (AVE) was used to measure divergent validity. According to the researchers, the acceptable critical number for this benchmark is 0/5. This means that AVE values above 0/5 indicate acceptable convergent validity. The validity and reliability results obtained for each individual variable of the study are presented in table 3.

Table 2. Demographic variables of samples

	variable	frequency	%
Gender	Male	70	89.75
	female	8	10.25
age	20-30	7	8.97
	31-40	25	32.05
	41-50	40	51.28
	51-60	6	7.7
	Above 60	0	0
education	Diploma	6	7.7
	BA	50	64.1
	MA	21	26.92
	PhD	1	1.28
Work experience	Less than 5 years	3	3.84
	5-10 years	11	14.1
	10-15 years	15	19.23
	15-20 years	22	28.2
	More than 20 years	27	34.62

6.Model fitting

The coefficient of determination is a criterion for linking the measurement part and the structural part of the structural equation modeling and demonstrates the effect of an exogenous variable on an endogenous variable. The larger R2 value of endogenous structures of a model, indicates better fitness of the model. If the R2 value of an endogenous variable turns out to be strong, it means that the corresponding exogenous variable has a very strong effect on that variable, and vice versa (Davari and Rezazadeh, 1393). Chin (1998) proposed three values (0/19, 0/33 and 0/67) as criteria for determination of weak, moderate, and strong coefficients of determination. In the

present study, all values   of determination coefficients are greater than 0/67 (table 3) and this indicates strong fitness of the model.

The other benchmark, introduced by Stone and Geisser (1975) specifies the prediction power of the model, this benchmark is known as "Q2.". They believe that models with acceptable structural component fitness should be able to predict indicators associated with endogenous structures of the model. The researchers proposed three values (0/02, 0/15 and 0/35) for prediction power of the model in endogenous structures in three orders of magnitude indicating weak, moderate and strong predictive power. The calculated values   for this benchmark are presented in Table 3, indicating acceptable predictive power of the model.

The GOF benchmark is also used to check the general fitness of the model. The values above 0/36 indicate the strong fitness of the general model (Davari and Rezazadeh, 1393). The results are summarized in Table 3.

Table 3: the reliability, validity and fitness of the model

variable	Q2	R2	AVE	CR	Cronbach's alpha
Leadership characteristics	0/353	0/657	0/538	0.926	0.912
Human resource characteristics	0.342	0/679	0/531	0/918	0/901
Organizational design characteristics	0/353	0/712	0/513	0/912	0/892
Organizational culture characteristics	0/353	0/739	0/522	0/883	0/846
Mission/strategy characteristics	0/412	0/780	0/582	0/846	0/755
Organizational learning	0/520	0/762	0/691	0/899	0/851

7. Research findings

In this study, the partial least squares method (PLS) was used to analyze the data. The future that distinguishes this method from other similar methods is the lack of need for distributional presuppositions, and sample size. Due to the small sample size in this study, this method seems to be a rational choice. In the PLS method, hypotheses testing consists of two parts.

A) Evaluation of the significance coefficients of t for each of the hypotheses

In this section, we use the Bootstrap algorithm to compute the t statistic. If the value of the t statistic exceeds 1.96, the relationship between structures is verified, and the research characteristics are confirmed at the confidence level of 0/95.

B – Evaluation of the standardized coefficients of the paths for the hypotheses

The PLS algorithm must be used to calculate the standard coefficients of the path between the structures. The standardized coefficients between the independent and dependent variable show that the independent variable accounts for this percentage of the dependent variable variations.

Characteristics of the Learning Organization in the Iranian Aluminum Company

Characteristic 1 – the human resource characteristics are among the learning organization characteristics

According to the analysis results, the coefficient of path is equal to 0/824 and the value of T statistic is equal to 23/525. Since this number stands within the 1/96 to -1.-/96 range, one can argue (with confidence of 95%) that the human resource characteristics also fit into the learning organization characteristics at IRALCO Company.

Characteristic 2 - Leadership characteristics are consistent with the learning organization's characteristics.

According to the calculated coefficient of path (0/822) and the T statistic (26.385), and since this number stands within the 1/96 _ -1.-/96 range, one can argue (with confidence of 95%) that the Leadership characteristics are consistent with the learning organization's characteristics at IRALCO Company.

Characteristic 3 - Mission / Strategy characteristics are consistent with the learning organization's characteristics.

According to the calculated coefficient of path (0/883) and the T statistic (42.299), and since this number stands within the 1/96 _ -1.-/96 range, one can argue (with confidence of 95%) that the Mission / Strategy characteristics are consistent with the learning organization's characteristics at IRALCO Company.

Characteristic 4 - Organizational culture characteristics are consistent with the learning organization's characteristics.

According to the calculated coefficient of path (0/860) and the T statistic (31.797), and since this number stands within the 1/96 _ -1.-/96 range, one can argue (with confidence of 95%) that the Organizational culture characteristics are consistent with the learning organization's characteristics at IRALCO Company.

Characteristic 5 - Organizational learning is consistent with the learning organization's features.

According to the calculated coefficient of path (0/873) and the T statistic (39/088), and since this number stands within the 1/96 _ -1.-/96 range, one can argue (with confidence of 95%) that the Organizational learning characteristics are consistent with the learning organization's characteristics at IRALCO Company.

Feature 6: Organizational design characteristics are consistent with learning organization characteristics

According to the calculated coefficient of path (0/844) and the T statistic (30.612), and since this number stands within the 1/96 _ -1.-/96 range, one can argue (with confidence of 95%) that the Organizational design characteristics are consistent with the learning organization's characteristics at IRALCO Company
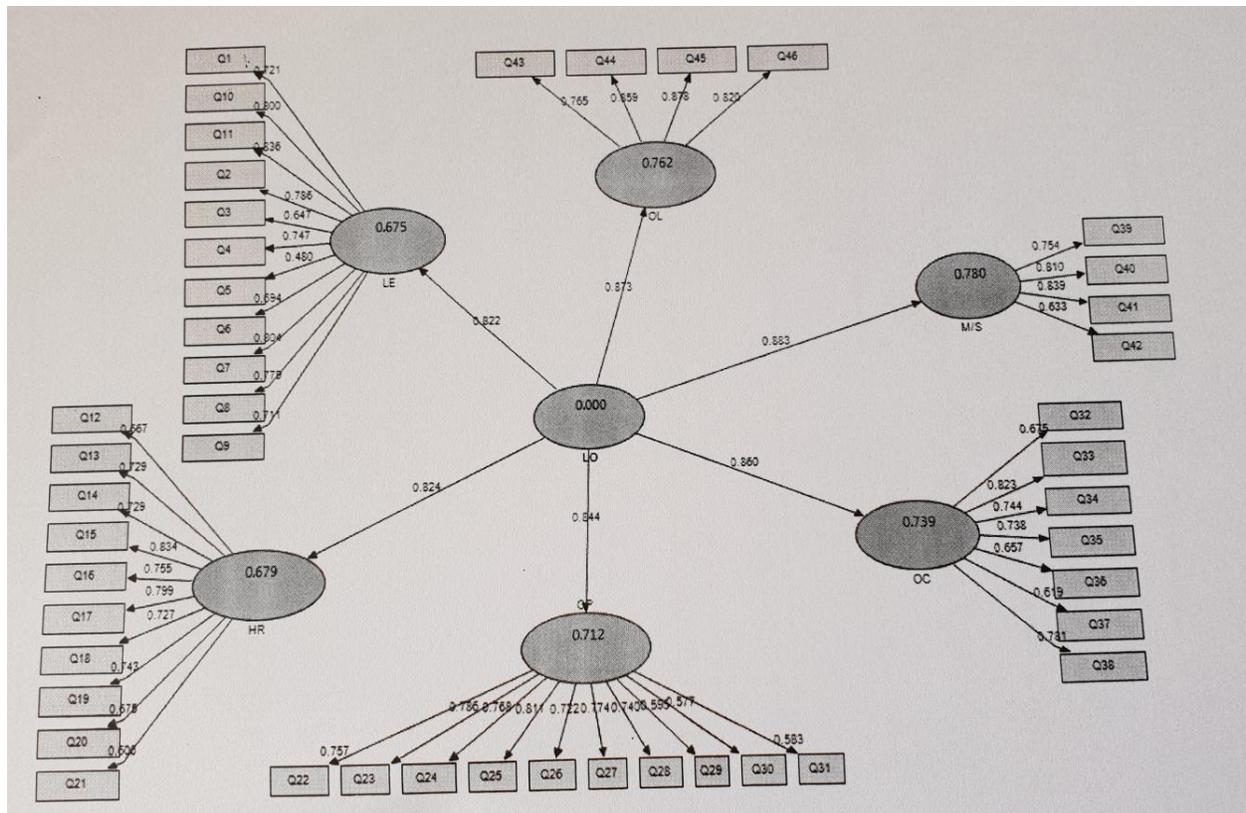
Figure 2: coefficients of path between research variables

The analysis results as well as the hypothesis rejection – confirmation results are presented in Figures 2 and 3 and Table 4.

Table 4 - Results of research hypotheses

variable	coefficients of path	T statistic	results
Human resource characteristics	0/824	23.525	confirmed
Leadership characteristics	0/822	26.358	confirmed
Mission/strategy characteristics	0/883	42.299	confirmed
Organizational culture characteristics	0/860	31.797	confirmed
Organizational learning	0/873	39.088	confirmed

Organizational design characteristics	0/844	30.612	confirmed

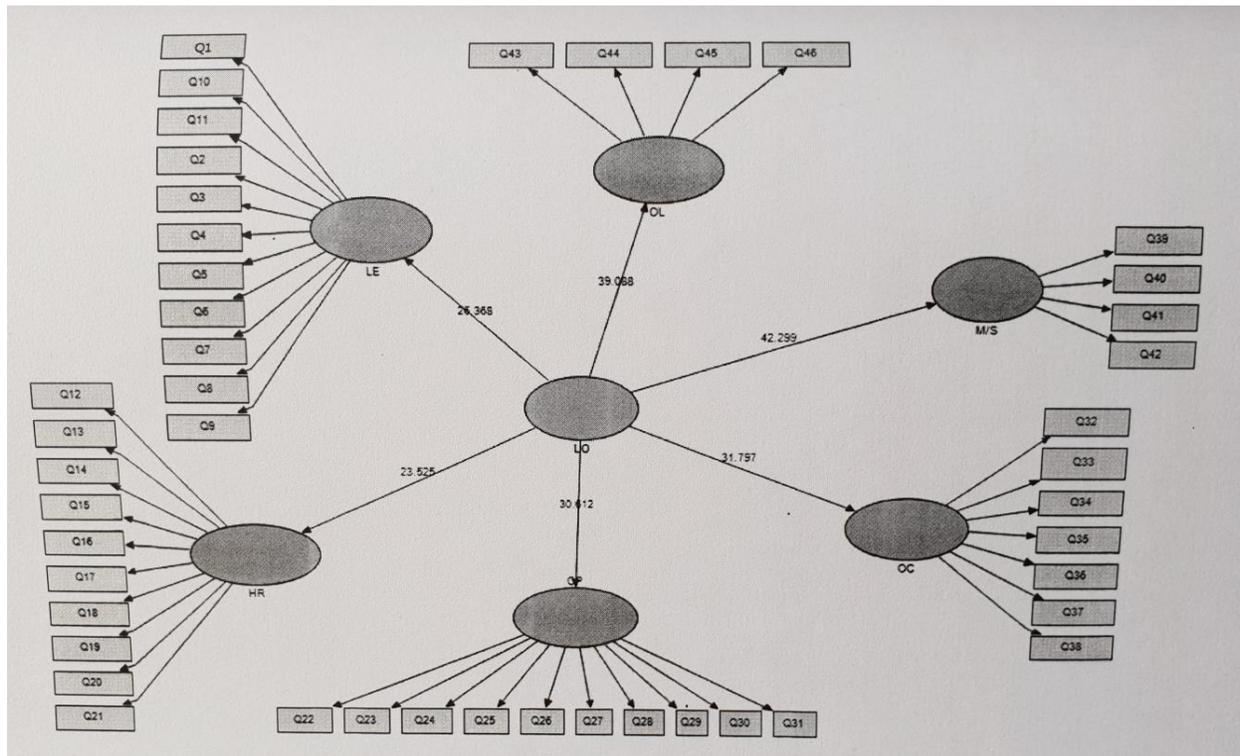Figure 3. Statistical T among the variables of the research

Figure 3. T statistic among the research variables

8. Discussion and Conclusion

In the present study, attempts are made to construct and validate a scale to measure the characteristics of learning organization in the Iranian aluminum company. Considering the importance of learning organizations and their role in execution of the successful organizations' tasks, the effect of such organizations on Iralco was studied. In this vein, first, the variables of each part of the study were identified and a conceptual framework was designed. After designing a model and collecting the required information through a questionnaire, the effect of each of the characteristics of learning organizations (such as human resource characteristics, leadership characteristics, organizational design characteristics …) on the evaluation of learning

organizations. After sample selection and data collection, the questionnaires were evaluated and analyzed using PLS software and partial least squares method.

The findings of this study showed that the human resource characteristics are consistent with the characteristics of the learning organization in IRALCO. Ghorbani Zadeh (1388), also confirmed this this and marked it as one of the two important and influential factors with the highest score among the other factors and variables. This finding is consistent with the findings of Chiva (2007). Research findings also suggest that the leadership characteristics are consistent with learning organization's characteristics in IRALCO. This finding is consistent with the findings of Goh and,Richards (1997) and Jyothibabu (2010). The mission / Strategy characteristics proved to be consistent with the characteristics of learning organization in IRALCO. This finding is consistent with is the result of Zareie (1381). In addition, according to the results of this study, organizational culture characteristics are in line with the characteristics of the learning organization in IRALCO, which is consistent with the findings of Ghorbani (1385) and Jyothibabu (2010), but inconsistent with the result of Chiva (2007). According to Chiva, Culture is an influential factor, but has been marked as a mediator and moderator, which, along with other factors, can affect the process of organizational learning. According to the results of the present study, learning as a basic principle accepted by the staff and managers throughout the organization, should be recognized as an essential component of learning organizations. The results of this part of the research are consistent with the results of Aqdasi and Khakzarbefroyi (1387). Finally, according to the research findings, the organizational design characteristics are consistent with the learning organization characteristics. This finding is consistent with the findings of Islamabolchi (1388) and Jyothibabu (2010). In all three studies, it has been emphasized that organizational designs constitute a specific learning organizations characteristic that can advance learning through different strategies, and ultimately bring about a specific result (contribution to learning in organizations)

In general, regarding the applied and managerial results of this research, it can be argued that since the ultimate goal of all organizations is greater profit, market share, and competitive advantage, the results of this research will help managers to promote and support influential factors in order to develop acquisition of new knowledge in their organization as a learning organization, and consequently improve the performance of their organization and gain competitive advantage over their competitors. The results of this research, will provide directors

with a better insight into different dimensions of the learning organizations and enable them to shift investments and resource allocations from inefficient or low-impact sectors towards other sectors that have a major impact on performance.

Finally, it should be noted that the results and findings of the present study (just like any other study) have been affected by some limitations. For instance, the data collection instrument used in this research was a questionnaire (that is considered a limitation by itself). In other words, questionnaire examines the attitudes of individuals, rather than facts. Other limitation of this research include: the present study is a sectional research and this actually limits the generalizability of results. The use of sectional data in construction and validation of a scale to measure the characteristics of learning organizations is associated with some shortcomings because the data are limited to a specific time frame and the results can not necessarily be regarded acceptable at all times. In addition, since the present study deals with the Iralco in Markazi province, generalization of results to other provinces and industries is not reasonable.

According to the afore-mentioned limitations, the following points could be used as suggestions for further studies: To ensure the model validity, future researchers are recommended to test this research in other organizations. The researchers are also advised to use experimental and quasi-experimental research. Considering the vast geographical area of Iran, different cultures dominate over companies in different provinces, so it is recommended to conduct a similar research in other cities and provinces. Also, since a significant part of the economy of each country is made up of service companies, a need is also felt for conduction of such research in service companies. The researchers are also required to identify some of the problems various manufacturing industries are facing and explain how organizational learning could lead to prevention or resolution of such problems.

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