

International Journal of Applied Management

Volume 2 Issue 1

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A Test Of Organization Learning Model : The Interrelatedness Between Learning Dimensions And Facilitators And Their Impact On Organization Effectiveness

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ISSN 1742-2590

Abstract

The purpose of this study is to test one of the comprehensive organization learning models reported in the literature. The model includes seven organization learning dimensions, ten learning facilitators and four organization performance indicators. The data was collected from 43 Kuwaiti and Egyptian small and medium sized organizations. The results showed marked differences between learner organizations and nonlearner organizations in terms of organizational performance and the learning facilitators. The study reports empirically driven organization learning patterns there were however no differences in learning facilitators and organization performance among these different patterns. The implications, limitations and the future research directions are discussed.

The popularity of Organization Learning (OL) has grown dramatically lately (Crossan & Guatto,1996) , yet little convergence or consensus on what is meant by the term, or its basic nature , has emerged (Huber,1991;Kim1993). Primarily, convergence has not occurred because different researchers have used the concept of organization learning , to focus on different domains. Huber (1991) takes an information processing perspective of organizational learning. Whereas Nonka and Takeuchi (1995)are concerned with product innovation, March and Olsen(1975) are interested in exploring how the cognitive limitations of managers affect learning. These works share some common grounds , but the domains differ significantly .They concern different phenomena such as information processing, product innovation, or bounded rationality. Although the phenomenological domains of various researchers do sometimes overlap, the differences in domains do much to explain the lack of convergence among organizational learning framework.

Theoretical Background

The majority of the literature about the learning organization tries to define the general characteristics of learning organizations .It has tended to produce definitions that focus on: 1-The importance of acquiring ,improving and transferring knowledge; 2-Facilitating and making use of individual learning ; 3-Modifying behavior and practices to reflect the learning (Appelbaum and Reichart,1998). Many reviews of the literature that have appeared (Argyris and Schon,1978; Shirvastava,1983; Fiol & Lyles,1985; Hubr, 1991; Dodgson, 1993; Nicolini and Meznar,1995; Easterby-Smith,1997) can be considered an attempt to define and develop agreement on the terms. Specifically, Fiol and Lyles (1985); Hubr (1991) have been explicit in their invitation to find a common background to construct a paradigm for the scientific development of OL. Esterby-Smith (1997) defines the literature on OL as sharing an action orientation and being geared toward creating an ideal type , an organization in which learning is maximized.

Empirical work in the OL literature included mostly case studies (Beer, 2000; Davies, 2000), or how to build successful knowledge management projects (Davenport, 1998) , and also interviews with Corporate Learning Officers (CLO) (Baldwin,2000). There is a paucity of empirical OL models. Several authors noted that there is a shortage of empirical work in this area (Easterby-Smith, 1997).

According to Huber(1991) the activity in the learning process involves knowledge acquisition, sharing and utilization .Learning is associated with improvement in performance and rapid correction of errors and fast reaction to environmental

changes(Gherardi, 1999) . Learning is an inseparable and an integral part of all organizational practices . Organizations must have a transitional identity which is determined by the acquisition of practical skills(Gherardi,1999). The provocative question to raise is how much of a difference a learning organization really makes. Very few studies have actually been undertaken to determine if learning processes lead to desirable outcomes.

The Study Model

The study model is based on the work reported by Appelbaum and Reichart (1998)and Nevis, DiBella &Gould (2000). The following are the definitions used for learning dimensions and learning facilitators as defined by Nevis et al. (2000)

The Learning Dimensions

1. Knowledge Source: Internal-External. Preference for developing knowledge internally versus preference for acquiring knowledge developed externally.
2. Product-Process Focus: What?-How? Emphasis on accumulation of knowledge about what products/services are versus how organization develops , makes and delivers its products / services.
3. Documentation mode: Personal-Public. Knowledge individuals possess versus publicly available know-how.
4. Dissemination Mode: Formal – informal Formal , prescribed , organization – wide methods of sharing learning versus informal methods , such as role modeling and casual daily interaction
5. Learning Focus: incremental- Transformative Incremental or corrective learning versus transformative or radical learning.
6. Value-Chain Focus : Design- Deliver. Emphasis on learning investments in engineering/production activities (design and make functions) versus sales / service activities (make and deliver functions).
7. Skill Development Focus: Individual – Group. Development of individuals' skills versus team or group skills.

The Learning Facilitators

1. Scanning Imperative. Information gathering about conditions and practices outside the unit; awareness of the environment ; curiosity about the external environment in contrast to the internal environment.
2. Performance Gap. Shared perceptions of a gap between actual and desired state of performance ; performance shortfalls seen as opportunities for learning.
3. Concern for Measurement . Considerable effort spent on defining and measuring key factors when venturing into new areas , striving for specific , quantifiable measures ; discussion of metrics as a learning activity.
4. Experimental Mind set Support for trying new things . Curiosity about how things work; ability to play with things ; Failures are accepted , not punished , changes in work processes, policies and structures are a continuous series of learning opportunities.
5. Climate of Openness. Accessibility of information , open communications within the organization; problem /errors/lessons are shared , not hidden ; debate and conflict are acceptable ways to solve problems.
6. Continuousuity of Education. On going commitment to education at all levels of the organization ; clear support for all members' growth and development.

7. Operational Variety. Variety of methods procedures and systems ; appreciation of diversity ; Pluralistic rather than singular definition of valued competencies.
8. Multiple Advocates . New ideas and methods advanced by employees at all levels ; more than one champion.
9. Involved Leadership . Leaders articulate vision , are engaged in its implementation , frequently interact with members , become actively involved in educational programs.
10. Systems Perspective. Interdependence of organizational units; connection between the unit's needs and goals and the Company.

The Research Questions

The exploratory nature of the current study does not help in having specific predictions and hypotheses , instead the study addresses a number of research questions within the framework of the study model. These questions are as follows:

1. Are there differences in organization performance dimensions between learner organizations and nonlearner organizations?
2. Are there differences in organization performance facilitators between learner Organizations and nonlearner organizations?
3. Are there identifiable organization learning patterns ?
4. What is the relationship between organization learning patterns and the learning facilitators? Is it possible to say that different learning facilitators are associated with adopting certain learning patterns ?
5. What is the relationship between organization learning patterns and organization performance? Is it possible to say that some organizational learning patterns are superior to other patterns in terms of organization performance ?

Method

This part of the research discusses the study sample and measurement tool.

Sample

The sample used consisted of 43 mostly small to medium sized Kuwaiti and Egyptian organizations. The unit of analysis of the current research is the organization. For each organization informant employees were contacted to fill out the study questionnaire. The number of employees from each organization ranged from 7 to 20 employees. The employees chosen of each medium or large organizations were from a specific organization unit, to avoid variance due to location in the organization. The sample member came from the pharmaceutical industry, banks, schools, hospitals, education institutions, communication, office equipments and manufacturing. No demographic data were collected from the respondents. The data analysis is based on the average responses of the employees for each organization.

Questionnaire Measures

Forty two questions capture the study variables. A Likert response format (ranging from 1= to a limited extent to , 4=to a very great extent) was used to measure the following constructs. All Questions were developed for the present study.

Current Dimensions of Organization Learning

Fourteen items measure the current dimensions of organizational learning. Two questions were used for each of the seven dimensions identified in the study model. The internal reliability coefficient for the items used in the current study was .79. An example of the two items used for the first dimension, namely knowledge source is '1- What is the extent to which your organization is concerned with developing knowledge internally, 2- What is the extent to which your organization is concerned with acquiring knowledge developed externally'.

Desired Dimensions of Organization Learning

Fourteen items measure the desired state of affairs of the dimensions of organizational learning. Two questions were developed for each the seven dimensions identified in the study model. The internal reliability coefficient for the items used in the current study was .85. An example of the two items used for the first dimension, namely knowledge source is : 1- What should be the extent of your organization concern with developing knowledge internally, 2- What should be the extent of your organization concern with acquiring knowledge developed externally'. The analysis of the desired dimensions of organization learning is not reported in the current research.

The Learning Facilitators

Ten items measure the learning facilitators, one item for each facilitator identified in the study model. The internal reliability coefficient for the items used in the current study was .86. An example of the item used for the first learning facilitator, namely Scanning Imperative is: ' What is the extent to which your organization gathers

information about conditions and practices outside it and is aware of the environment'.

The Organization Performance

Four items measure the organization performance . One item was used to measure each of the following performance domains : production, marketing, human resources management and feeling competition. The internal reliability coefficient for the items in the current study was .75. an example of the item used for the production domain is 'What is the extent to which your organization is successful/effective in producing/providing its products/services.

Results

Levels of learning dimensions, learning facilitators and organization performance

The Egyptian and the Kuwaiti organizations were used as a one group because the t tests results (not shown) indicated no significant differences between the two countries with respect to any of the study variables. The following results are based on both the Egyptian and Kuwaiti organizations.

The descriptive statistics contained in table 1 shows that all variables are close to the midpoint scale. The means for learning dimensions ranged between 2.22 to 2.64; while the means of the learning facilitators ranged between 2.26 to 2.75; the means of the organization performance indicators ranged between 2.39 to 2.87.

Table 1: Means and Standard Deviations for Learning Dimension, Facilitators and Organization Performance

Variables	M	SD
Learning Dimensions:		
Developing knowledge internally.	2.46	.44
Acquiring knowledge developed externally	2.42	.34
Accumulating knowledge of products /services	2.61	.51
Accumulating knowledge of processes	2.62	.47
Knowledge individually possessed	2.42	.37
Knowledge publicly available	2.27	.34
Formal procedures of sharing learning	2.22	.50
Informal practices of sharing learning	2.50	.50
Incremental changes	2.64	.45
Radical changes	2.35	.49
Emphasize on learning engineering/ production technology	2.33	.57
Emphasize on learning sale/ service activities	2.64	.55
Focus on development of individual/ skills	2.35	.43
Focus on development of group skills	2.35	.47
Learning Facilitators:		
Scanning imperative	2.75	.51
Performance gap	2.45	.46
Concern for measurement	2.62	.42
Experimental mind-set	2.35	.40
Climate of openness	2.41	.44
Continuous education	2.36	.54
Operational variety	2.42	.50
Multiple advocates	2.26	.45
Involved leadership	2.37	.47
System perspective	2.49	.46
Organization performance		
Effective production	2.87	.31
Effective marketing	2.71	.43
Effective human resources	2.39	.60
Effective Completion	2.72	.50

Learner organizations versus nonlearner organizations

A composite measure of organization learning was used to compare between learner versus nonlearner organizations. This measure is the average of eight learning dimensions, believed to be related to the general model of organization learning; which include acquiring knowledge, distributing or dissemination of knowledge and utilization of knowledge. Exactly the organization learning measure is the average of the following learning dimensions; 1- developing knowledge internally 2- acquiring knowledge developed externally 3- formal procedure of sharing learning 4- informal practices for sharing learning 5- adopting incremental changes 6- adopting radical changes 7-development of individual skills 8- development of group skills. Then the median was used to form the two organization groups, the learners (above the median which is 2.35) and the nonlearners (below the median). The results of the T test are presented in Table 2. This Table depicts the mean, Standard deviation, T values and the significance level.

Table 2: Summary of Comparing Learner Versus Nonlearner Organizations in term of Learning Facilitators and Organization Performance

Variables	Learners		Nonlearners		T value	Sig. T
	M	SD	M	SD		
Learning Facilitators:						
Scanning Imperative	2.92	.43	2.59	.54	2.2	.03
Performance Gap	2.51	.44	2.39	.48	.8	.41
Concern for measurement	2.73	.44	2.51	.39	1.7	.09
Experimental mind-set	2.46	.35	2.24	.42	1.8	.08
Climate of openness	2.57	.48	2.26	.35	2.4	.02
Continuous education	2.63	.42	2.10	.52	3.8	.001
Operational variety	2.67	.40	2.18	.48	3.7	.001
Multiple advocates	2.47	.38	2.06	.42	3.4	.001
Involved leadership	2.56	.40	2.19	.47	2.8	.007
Systems perspective	2.67	.42	2.32	.45	2.7	.01
Organization Performance:						
Effective production	2.94	.32	2.81	.30	1.4	.18
Effective Marketing	2.89	.40	2.54	.39	2.9	.006
Effective human resources	2.75	.55	2.04	.42	4.7	.0001
Effective competition	2.88	.58	2.62	.41	1.4	.16

The review of the T analysis results indicates that there are significant differences between learners and nonlearners in terms of seven of the ten facilitators. Namely there were significant differences between the two groups in terms of scanning imperative, climate of openness, continuous education, operational variety, multiple advocators, involved leadership and systems perspectives. The review of the T analysis results indicates that there are significant differences between learners and nonlearners in terms of two of the four organization performance indicators. Namely there were significant differences between the two groups in terms of effectiveness of marketing and effectiveness of human resources. So the answer to the study first question which address's the differences in organization performance between

learners and nonlearner is affirmative answer only with respect to specific performance indicators. The answer to the study second question which address's the differences in learning facilitators between learners and nonlearners is affirmative yes with respect to most learning facilitators.

Organization Learning Patterns

In order to identify possible organization learning patterns , a cluster analysis was conducted. The results of the cluster analysis results are depicted in Table 3. Based on the measure of distance between clusters a cutoff point was used to reflect reasonably distinguished organization clusters. Five clusters were identified , the number of organizations in each cluster was as follows 2,2,2,22, and 15 for the first to the fifth cluster respectively.

Table 3: Patterns of Organization Learning: Summary of Cluster Analysis of Learning Dimension

Learning Dimensions		Means of				
		Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Developing internally	knowledge	2.4	2.2	1.9	2.5	2.4
Acquiring developed externally	knowledge	2.5	2.5	2.5	2.4	2.4
Accumulating of product/ services	knowledge	2.6	2.8	3.2	2.6	2.7
Accumulating of processes	knowledge	2.3	2.6	2.2	2.6	2.7
Knowledge possessed	individually	2.5	2.4	2.4	2.4	2.4
Knowledge available	publicly	2.5	2.2	2.3	2.3	2.3
Formal sharing learning	procedures of	2.4	2.4	2.1	2.2	2.3
Informal sharing learning	procedures of	1.7	2.7	2.7	2.6	2.4
Incremental changes		2.3	2.3	2.8	2.7	2.6
Radical Changes		2.0	2.3	2.1	2.3	2.6
Emphasize on engineering / product technology	learning	2.1	2.4	1.7	2.3	2.5
Emphasize on sales / service activates	learning	2.5	2.7	2.6	2.7	2.6
Focus on development of individual skills		1.7	2.3	2.4	2.4	2.3
Focus on development of group skills		2.1	2.3	2.0	2.4	2.4

The review of the results of the cluster analysis indicate that there is no salient features for any of the five clusters. In other words one can not identify clear differences among clusters that can be conceptually meaningful. So the answer to the study third question which address's the existence of organization learning pattern is affirmative yes, however they are not conceptually useful.

The relationship between organization learning patterns and learning facilitators

The MANOVA was used to explore the relationship between organization learning patterns (the five clusters) and the learning facilitators. The results of the MANOVA are depicted in Table 4. The multivariate test was not significant (Hotelling ,approximate $F=.93$, not significant) and non of the univariate analysis showed significant differences among clusters with respect to individual learning facilitators. So the answer to the study fourth question is that there are no differences in learning facilitators among different organization learning patterns.

Table 4: Summary of MANOVA Analysis of Patterns of Organization Learning on Learning Facilitators

	Approx.	F Hypoth.	DF sig. of F
Hotellings	.93	20	55
Univariate F Tests with (4,37) D.F.			

Learning Facilitators	F	Sig. of F
Scanning Imperative	.41	.80
Performance Gap	.65	.63
Concern for measurement	.20	.94
Experimental mind-set	.94	.45
Climate of openness	.87	.49
Continuous education	.29	.88
Operational variety	.42	.80
Multiple advocates	.75	.56
Involved leadership	.82	.52
Systems perspective	.82	.52

The relationship between organization learning patterns and organization performance

The MANOVA was used to explore the relationship between organization learning patterns (the five clusters) and the organization performance indicators. The results of the MANOVA are depicted in Table 5. The multivariate test was not significant (Hotelling, approximate $F= .48$, not significant. And non of the univariate analysis showed significant differences among clusters with respect to individual organization performance indicators .so the answer to the study fifth question is that there are no differences in organization performance among different organization learning patterns.

Table 5: Summary of MANOVA Analysis of Patterns of Organization Learning on Organization Performance

	Approx.	F Hypoth	DF sig. of F
Hotel lings	.48	16	.97
Univariate F Tests with (4,37) D.F.			

Learning Facilitators	F	Sig. of F
Effective Production	.04	.99
Effective Marketing	.37	.83
Effective human resources	.17	.95
Effective competition	.96	.44

Discussion

The reviews of the organization learning literature indicate clearly there are abundance in the conceptual and theorizing studies and no or very limited empirical studies. There is clear richness in the different perspectives on organization learning and learning organizations , however there is still skeptics of the dangers of premature paradigm closure (Smith & Araujo,1999). The theory development has a value of its own independent of its usefulness to practitioners. However , there is a clear need for empirically testing the conceptual frames suggested for organization learning.

The current study is an attempt to test one of the literature comprehensive models of organization learning. Admittedly, the study questionnaire may have not captured the richness of the model constructs, however the high reliability coefficients suggest that the results of the current study are potentially useful. A good feature of the current study is the adoption of a multidimensional perspective to measure organization performance . The organization performance indicators included production/providing of products and services, marketing effectiveness, human resources effectiveness and effectiveness in facing competition.

The major conclusions of the study results indicate that there are marked differences in organization performance (marketing effectiveness and human resources effectiveness) between learners and nonlearners . These differences potentially reflect the well underscored importance of marketing and human resources of competitive advantages and distinctive competencies. It seems also that organizations to be learners should secure a number of learning facilitators , which include scanning the environment, build a climate of openness, adopt continuous education perspective, appreciate operational variety , secure multiple advocators for development and change , get leadership involved in change and development and adopt a systems perspective.

The current study indicate the existence of organization learning patterns , however non of the identified patterns was conceptually useful. There were no relationship between organization learning patterns and learning facilitators. This result suggest that learning facilitators are probably needed for all patterns of organizational learning . However there is a need to explore this issue further. A better view about the impact of organization learning patterns can be reached if a clear and conceptually meaningful clusters can be identified.

The absence of a relationship between organization learning patterns and organization performance indicators, suggest that different patterns may be relevant to different organization business domains. That is to say that a specific pattern may be more conducive to higher organization performance for a specific organization domain .The current study did not address this issue directly because of the small number of organizations in the study sample.

Future studies should refine the questionnaire used to measure organization learning variables and should include business domain as a classifying variable. In addition future studies should include multiple measure for organization learning levels (learners and nonlearners). The vies and judgments of top officials and experts could be used in conjunction with questionnaire results to classify organizations.

Future studies should include the role of trust in learning (Edmonson and Moingeon,1999). In other words the variable climate of openness could be conceptualized to include other relevant variables , like organization trust.

The results of the current study is potentially generalizable to small to medium sized Arab organizations. However , the limitations of study ,primarily the small sample size suggest that generalizabilty may be problematic. The results of the study are potentially useful to academics and practitioners alike.

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