



ORGANIZATIONAL LEARNING IN LATIN AMERICA: A DESCRIPTIVE STUDY IN BRAZIL AND COLOMBIA

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Abstract

This paper presents the results of a descriptive research developed on organizational learning, in which we designed a theoretical model based in coincident approaches from the analyzed authors. Two Likert-type instruments were conceived, and applied to 356 top managers, from big, medium and small companies in Brazil and Colombia. The general objective was to characterize organizational learning. The contribution of this research is that the organizational capacity to learn is influenced directly by the sources, conditions, and culture for the organizational learning, with individuals, teams, organizations and inter-organizational learning as players.

Keywords: Organizational Learning, Theoretical Models, Learning Capacity, Sources, Conditions, Culture and Subjects of the Organizational Learning

JEL classification: D83



1. Introduction

The theme of organizational learning was studied by Mary Parker Follet et al. (1960). The most important study on the organizational concept and the cooperation of its components began in 1963, with Richard Cyert and James March's work, and after that the term organizational learning appears for the first time in a Miller and Cangelloti's publication, based on contingency theory. Since the beginning of the last decade of the 20th century, the term organizational learning and, recently, the theories of knowledge management, conquered new releases and the best spaces in the specialized publication about organizational theory, business and management. In the first decade of the 21st century, on ISI database it only appears one article entitled organizational learning model, and on the same database from 2005 onwards, more than 30 related articles were published on the subject in different countries.

Therefore, organizational learning is a composed and complex phenomenon, and as pointed out by Huber (1991), research undertaken in this field is diverse, and their results have not been cumulative. Problem: The first obstacle that the researcher faces on organizational learning, is the area that lies at the confluence of various fields of research, as stated by Dodgson (1993): Psychology, Sociology, Economics and Business Administration; in the latter, learning has an important role in Innovation, Strategy, Productivity, Decision Making and Organizational Change.

The learning capacity has been considered and valued as a multidimensional variable by Castañeda (2002), Mulholland et al. (2005), Tosey (2005), Enebo and Sherwood (2005), Vongchavalitkul et al. (2005), Hasle and Jensen (2006), Styhre et al. (2006), Cavaleri et al. (2007), Chinowsky and Carrillo (2007), Rupcic (2007), Hocking et al (2007), Garvin, Edmondson, Gino (2008), Kassim et al. (2008), Lazar (2008), Holmqvist (2009), Stancu and Balu (2009), Barra and Saraceno (2009), studies where sources, levels of learning, culture and conditions for learning, constitute representative dimensions. From these approaches, the learning capacity of an organization is determined by four key variables (Garzón, 2010): sources, levels of learning, culture and conditions for learning.

In short, considering the dynamic interaction among sources, levels of learning, culture and conditions for learning, knowledge and learning processes that develop them determine the learning capacity of organizations, whose effects on the organizational results are tempered by knowledge management.

With these assumptions, this research is based on: the ability to learn from the sources, levels of learning, culture and the conditions for learning are crucial in organizations?

The capacity for organizational learning must be characterized, establishing what it is from what we know, where this knowledge is, how we can use it and improve productivity. What are the aspects that should be considered in organizational learning, so developed conceptually and operationally in these organizations?



Then there still remains the need to have an answer to such relevant questions, as: under which conditions this is more feasible to be so?, in which players this is more feasible to be so?, which sources may make it more feasible to be so?, is the capacity of organizational learning one that brings the greatest opportunity to contribute to the organizational management?

The main objective is to characterize the capacity of organizational learning in Brazilian and Colombian organizations.

The specific objectives: Identify which sources of learning are perceived by people as necessary for the organizational learning processes; determine conditions to drive organizational learning, in relation to competences; structure: learning communities, commitment communities, communities of practice and organizational memory and its impact on learning; determine the culture for organizational learning.

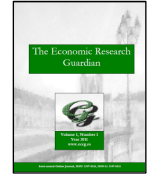
The current situation of Brazilian and Colombian organizations are characterized by limited resources, that instead of being a threat is an opportunity to promote learning environments where dialogue is the tool that adds value, with people willing to share knowledge.

For this, being concerned with organizational learning makes sense because: the current trend, which has been changing organizations, is the creation and recognition of knowledge. Knowledge, embedded in people, is decisive for economic development and productivity. The employees' capacity increment, the promotion and foment of organizational learning, are strategic weapons in order to serve the companies. The human capital has acquired relevance as source of differentiation of an organization against another, as people's knowledge makes the difference.

So, investigating organizational learning is valid in the perspective of the proposed objectives, because it allows to: validate tools to characterize the capacity of organizational learning, provide reliable tools to determine the factors' incidence that determine the sources, learning players, culture and conditions for learning in the context of the theoretical framework developed and its impact on organizational learning, and generate knowledge for the study of organizational learning and its influence on organizational results.

2. Literature Review

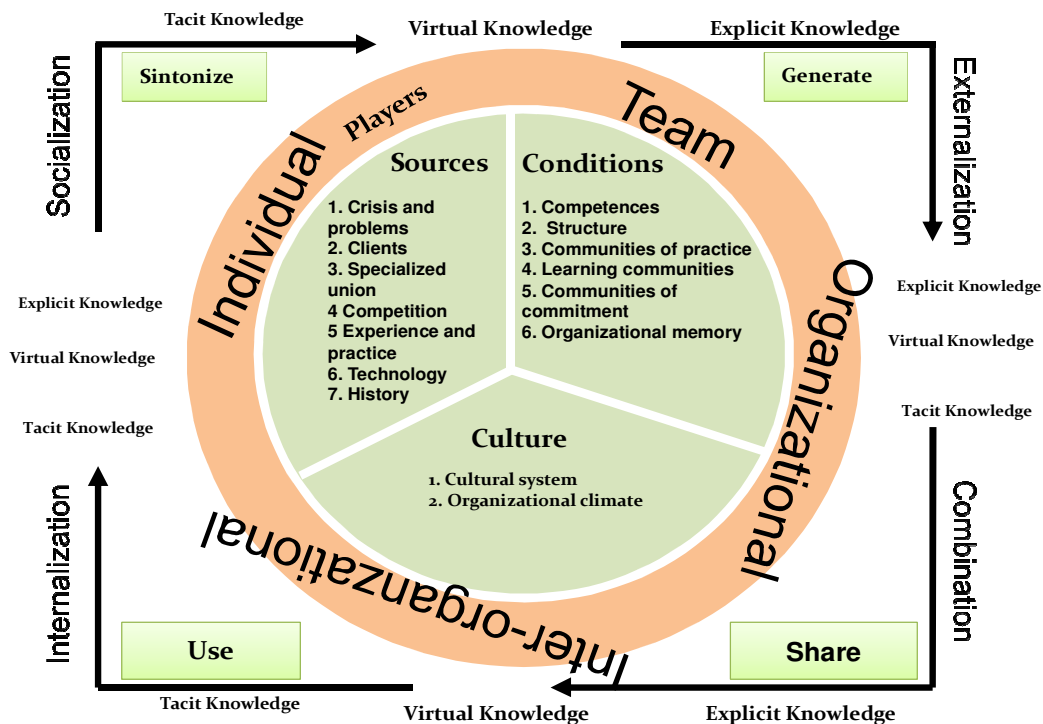
The literature on organizational learning has increased in recent times, not only in volume but also in an uncoordinated manner in relation to the dimensions of the theme, so for this study we adopted the theoretical model of Garzón (2010), who selected works from the most relevant authors, without distinguishing country or language, which allowed a critical and reflective understanding of the phenomenon; from these documents, we performed a full reading, based on content analysis, supported by the Atlas TI software, which allows the treatment of qualitative data. The data were analyzed theoretically by a sustainable questioning, characterizing the approaches based on units of analysis, which had a descriptive contribution, permitting an explanation of the problem, whose proposal was feasible or had a situational application, and not prophetic.



Proposal of the theoretical Model of Organizational Learning: The theoretical model is result of a process of an integrated theoretical research on disconnected realities of organizational learning, seeking a descriptive contribution, an explanation of the problem, being practicable in a situational manner (not prophetic) and based on matching approaches (not generalizable) of the authors listed in the methodology. Considering the literature review developed by Garzón (2010), to characterize consistently overlapping aspects of the analyzed authors, from an empirical perspective in a dynamic and inclusive way, we had an effective combination of existent different perspectives.

In this model of organizational learning, the variables are called sources for organizational learning, organizational learning players, culture for organizational learning, and conditions for organizational learning.

Description of variables of the model: organizational learning is the capacity of organizations to create, organize and process information from their sources to generate new individual, team, organizational and inter-organizational knowledge, creating a culture that facilitates and allows conditions to develop new capabilities, design new products and services, increase the existing supply and improve processes, oriented in perpetuity.



Source: Garzón (2010).

Illustration 1 - Model of organizational learning

This model (Illustration 1) is composed by the following variables: the tacit knowledge is a knowing in individual or social action, of high transcendence in knowledge creation, which determines know-



how, being difficult to imitate, copy or measure it (Nonaka and Takeuchi, 1999). The explicit knowledge, commonly tangible, can be found in guides, books, policies, procedures, work rules (Nonaka and Takeuchi, 1999). The virtual knowledge is a group of knowledge that only exists when a team or the organization is able of maintaining its cognitive base, having it expanded or not (Cutcher et al., 2000). This knowledge must be socialized, externalized, combined, and internalized.

There are seven sources of organizational learning that must be considered and used in the companies to generate learning, which can be classified as: crisis and problems, clients, specialized units, competition, experience and practitioners, technology, history.

There are conditions for organizational learning, because knowledge must be transferred and maintained by different conditions that may provide organizations to their generation, and they are: competences, structure, learning communities, communities of practice, organizational memory.

The organizational learning players as defined as: individual, team, organizational and inter-organizational.

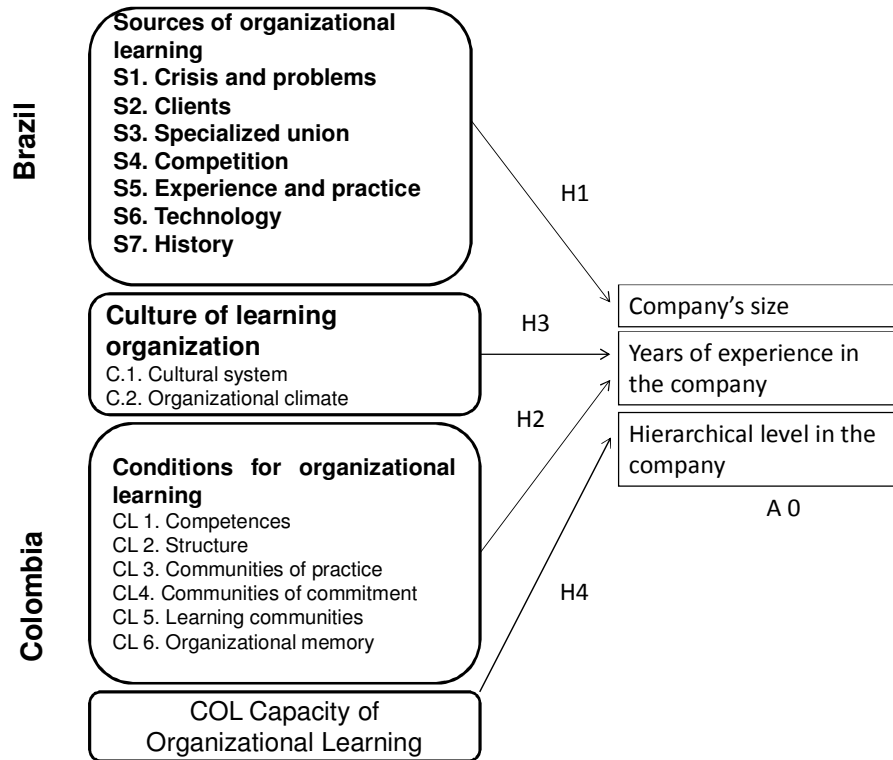
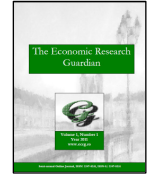
The variable culture for organizational learning is characterized because each organization creates assumptions, knowledge and rules that allow sharing knowledge, as development opportunity, creating a sense of belonging, facilitating the employees' climate, allowing and encouraging the tacit, explicit and virtual knowledge. The organizational climate for learning is composed by physical and psychosocial variables, perceived in a subjective way that will determine the individual effectiveness to develop its learning potential.

3. Research Methodology

The methodological model designed for this study is show in Illustration 2. The hypotheses based on this methodological model are:

- H₁: Sources of organizational learning allow that they present themselves in organizations.
- H₂: Conditions for organizational learning allow that they present themselves in organizations.
- H₃: Organizational culture allows a more feasible organizational learning.
- H₄: The organizational learning is determined by sources, conditions and organizational culture.

The empirical work was elaborated by analyzing data obtained in a questionnaire applied to 356 top managers in Brazil and Colombia, who took part of executive educational programs.



Source: Authors' elaboration (2009).

Illustration 2 - Methodological model

As a mechanism for collecting information from the survey, the study – which was developed in accordance to the methodology of construction of a Likert-type scale – used a scale with an ordinal measurement level. The elaboration of the instrument was made by methodological frameworks to further structure the first version of the instrument used in the research.

For pretest we randomly chose 35 top managers who participated in executive educational programs in Dominican Republic. The obtained results' analysis with SPSS, using the method of principal components, and the correlation coefficient, was made based on a design made, where redundant items appeared, and the method allows excluding them, creating an index, a correlation coefficient and root of the variance for each item, to eliminate those superfluous.

The instrument was composed of 128 items, with which we sought to measure the creation and influence of the organizational factor. A detailed analysis of this item allowed us to determine these factors.

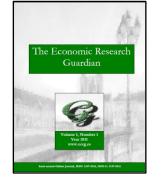


Table 1 - Composition of items of the pilot questionnaire

Relative weight of four variables	%	Weight
Culture for organizational learning	38.2	0.24530947
Levels of organizational learning	0.49464867	0.31748885
Conditions for organizational learning	0.39898757	0.25608905
Sources of organizational learning	0.28217407	0.18111263
Total	155.8%	1

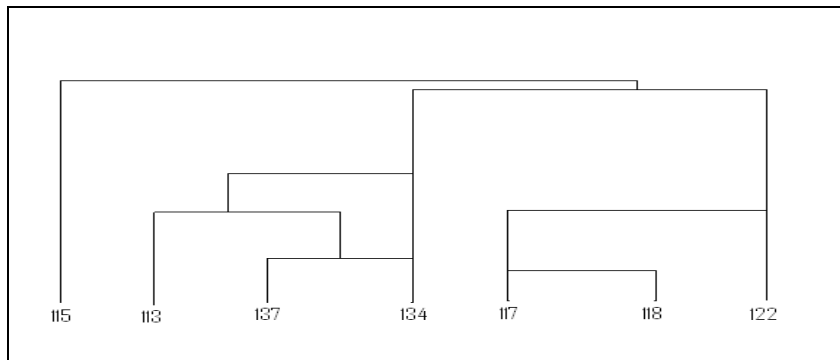
Source: Authors' elaboration (2009).

We evaluated the composition of the items related to the test trying above all that these factors were crucial and, as a consequence, relevant in the evaluation of goals. Based on previous results, new methodological frameworks and a new version of the proposed instrument to the survey have been developed, with three variables that group 40 items. We verified that the variables that are not represented in any of these three factors are those that correspond to the organizational learning players, therefore, not included in the final instrument that was used in this study.

Table 2 - Eigen values analysis and correlation matrix of main components

Eigen values	3.5261	0.2069	0.1588	0.1082
Proportion	0.882	0.052	0.040	0.027
Accumulation	0.882	0.933	0.973	1.000
Variables	PC1	PC2	PC3	PC4
Sources	-0.502	-0.166	0.738	-0.420
Conditions	-0.496	0.720	0.096	0.476
Levels	-0.498	-0.664	-0.190	0.524
Culture	-0.504	0.114	-0.641	-0.568

Source: Authors' elaboration (2008).

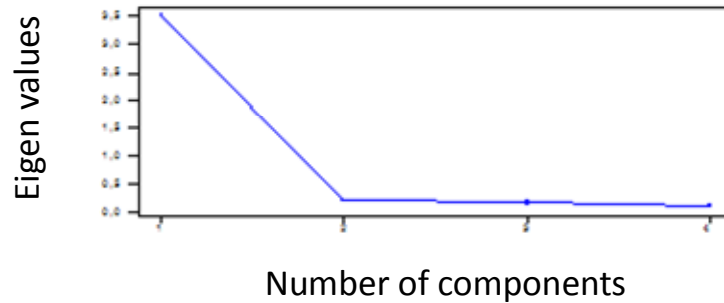


Source: Authors' elaboration (2009).

Illustration 3 - Correlation coefficient dendrogram: culture for organizational learning



Learning-culture



Source: Authors' elaboration (2009).

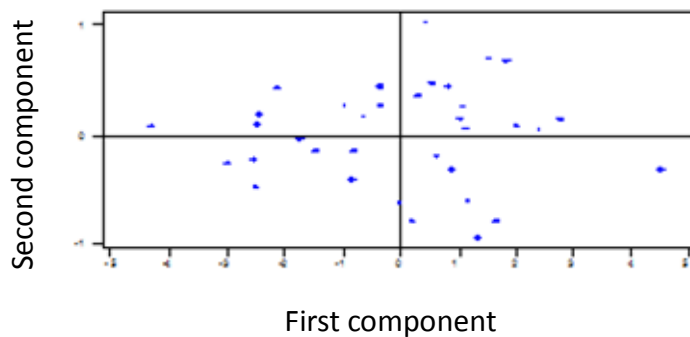
Illustration 4 - Percentage of eigen values: variance of 93.3% for the first and second components

Table 3. Clusters' agglomeration

Step a	Cluster combination		Correlation coefficient
	Cluster 1	Cluster 2	
1	134	137	0.869
2	117	118	0.774
3	113	137	0.749
4	117	122	-0.742
5	113	134	0.679
6	122	134	0.599
7	115	122	0.597

Source: Authors' elaboration (2008).

Learning-culture



Source: Authors' elaboration (2009).

Illustration 5 - Rotational space of components



In order to ensure the contribution of the dimension average score related to the total, we established the correlation between these scores (see Table 2). This correlation allowed showing the relevance of the dimension as an analysis variable in the context of organizational learning, and we obtained the following results:

Variable culture for organizational learning: for this variable we developed 26 statements (see methodological framework), and with the statistical application of principal components and correlation coefficient, we were able to eliminate redundant questions, and leaving seven statements with a score of 24.53%.

Table 4 - Correlation coefficient matrix of culture for organizational learning

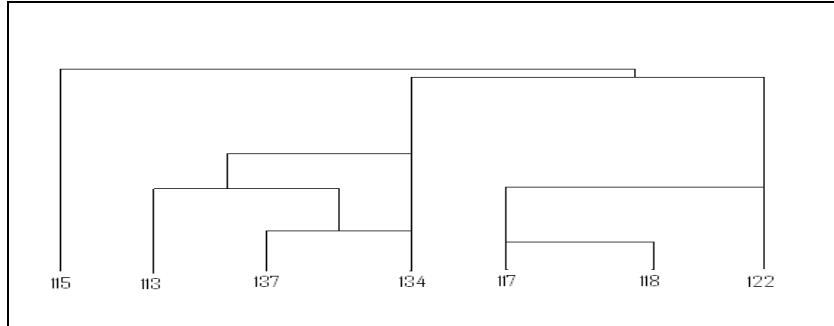
	var_113	var_115	var_117	var_118	var_122	var_134	var_137	
var_113	1	0.46911664	0.05164804	0.33717633	0.48074313	0.67984485	0.74916985	
var_115	0.46911661	1	-0.51294903	0.13869481	0.59758624	0.40082993	0.01899157	
var_117	0.05164802	-0.51294903	1	0.77451797	-0.74226962	-0.50800725	-0.07666644	
var_118	0.33717635	0.13869481	0.77451797	1	-0.48000784	-0.32446027	-0.12591323	
var_122	0.48074319	0.59758624	-0.74226962	-0.48000784	1	0.5991356	0.34428837	
var_134	0.67984481	0.40082993	-0.50800725	-0.32446027	0.5991356	1	0.86953023	
var_137	0.74916985	0.01899157	-0.07666644	-0.12591323	0.34428837	0.86953023	1	
	3.76769889	2.11227016	-0.01372632	1.32000777	1.79947589	2.71687309	2.77940035	3.8055227
	0.99006098	0.55505395	-0.00360695	0.34686639	0.47285911	0.7139291	0.73035976	
latent root	0.9802202	0.30808488	1.301E-05	0.12031629	0.22359574	0.50969476	0.53342538	2.675357
% prim com	38.2%							

Source: Authors' elaboration (2008).

Table 5 - Clusters' agglomeration

Step a	Cluster combination		Correlation coefficient
	Cluster 1	Cluster 2	
1	134	137	0.869
2	117	118	0.774
3	113	137	0.749
4	117	122	-0.742
5	113	134	0.679
6	122	134	0.599
7	115	122	0.597

Source: Authors' elaboration (2008).



Source: Authors' elaboration (2008).

Illustration 6 - Correlation coefficient dendrogram: culture for organizational learning

Variable organizational learning players: 22 statements were developed, and the statistical application of principal components and correlation coefficient, we were able to eliminate redundant questions, and having five statements with a rate of 31.7%.

Table 6 - Correlation coefficient matrix of organizational learning players

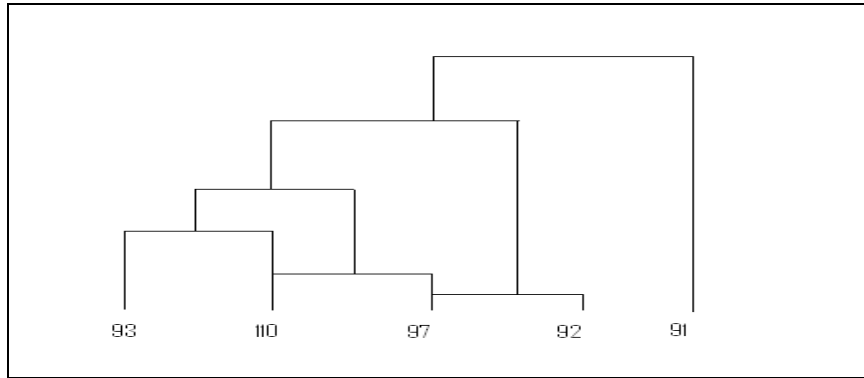
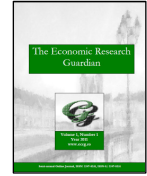
	<i>var_91</i>	<i>var_92</i>	<i>var_93</i>	<i>var_97</i>	<i>var_110</i>	
Var_91	1	0,396664414	-0,146076181	0,0606835	0,28018285	
Var_92	0,396664414	1	-0,278985888	0,36507663	0,51123738	
Var_93	0,14607611	-0,278985888	1	0,61459944	0,67303884	
Var_97	0,06068355	0,365076633	0,614599414	1	0,782113884	
Var_10	0,28018285	0,51123738	0,67303884	0,78211384	1	
	1,59145452	1,99399257	1,86257618	2,82247345	3,24657291	3,39368083
	0,46894645	0,58756045	0,54883659	0,83168498	0,95665236	
	0,21991078	0,34522721	0,30122159	0,69169995	0,91518388	2,4732432
	49.5%					

Source: Authors' elaboration (2008).

Table 7 - Clusters' agglomeration

<i>Step a</i>	<i>Cluster combination</i>		<i>Correlation coefficient</i>
	<i>Cluster 1</i>	<i>Cluster 2</i>	
1	97	110	0,7821
2	93	110	0,673
3	93	97	0,614
4	92	110	0,511
5	91	92	0,396

Source: Authors' elaboration (2008).



Source: Authors' elaboration (2009).

Illustration 7 - Correlation coefficient dendrogram: organizational learning players

Variable conditions for organizational learning: for this variable, 25 statements were developed (see methodological framework), and with the statistical application of principal components and correlation coefficient, we were able to eliminate redundant questions and it remained six statements with a rate of 25.6%.

Table 8 - Main components and correlation coefficient of conditions for organizational learning

	<i>var_22</i>	<i>var_27</i>	<i>var_67</i>	<i>var_108</i>	<i>var_111</i>	<i>var_112</i>	
<i>var_22</i>	1	-0.50936733	-0.83270417	0.65394702	-0.31404103	-0.27255798	
<i>var_27</i>	-0.50936733	1	0.80041644	-0.00492121	0.12581848	0.76415993	
<i>var_67</i>	-0.83270417	0.80041644	1	-0.40013368	0.29960432	0.66951685	
<i>var_108</i>	0.65394702	-0.00492121	-0.40013368	1	0.37622642	0.4078988	
<i>var_111</i>	-0.31404103	0.12581848	0.29960432	0.37622642	1	0.59564033	
<i>var_112</i>	-0.27255798	0.76415993	0.66951685	0.4078988	0.59564033	1	
	-0.27472349	2.1761063	1.53669977	2.03301735	2.08324852	3.1646593	3.27398937
	-0.08391093	0.66466505	0.46936614	0.62096028	0.63630278	0.96660605	
	0.00704104	0.44177963	0.22030458	0.38559167	0.40488122	0.93432725	2.39392539
	0.39898757						

Source: Authors' elaboration (2008).

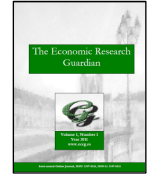
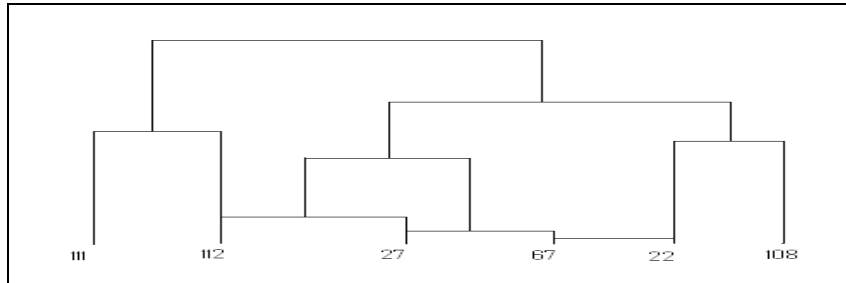


Table 9 - Clusters' agglomeration

Step a	Cluster combination		Correlation coefficient
	Cluster 1	Cluster 2	
1	22	67	-0.832
2	27	67	0.800
3	27	112	0.764
4	67	112	0.669
5	22	108	0.653
6	111	112	0.590

Source: Authors' elaboration (2008).



Source: Authors' elaboration (2009).

Illustration 8 - Correlation coefficient dendrogram: conditions for organizational learning

From 128 questions, those which had a load greater than 0.6 and communities of behavior above 50% than other variables were selected. Due to this empirical identification we observed that the three factors are: culture for organizational learning, sources for organizational learning, and organizational conditions for learning.

With matrix of factors and questions, we identified the proximity that the variables had with each factor and which could be excluded from the instrument. For this, we selected variables that had correlations higher than 0.6, with any of the three components, remaining from 128 variables, 40 variables. With this empirical identification, we observed that the three factors are culture for organizational learning, sources for organizational learning, and conditions for organizational learning. The items were constructed following the conceptual framework and the composition of each item in the test, which depends mostly on their design and the researcher's knowledge and experience. Some items presented a correlation of approximately 0.90, and they were excluded from the instrument because we believed that their importance was not relevant, based on the statistical result.



4. Results' Analysis

For results' analysis we followed the following plan of statistical analysis: at first we considered the dimensions of each area of assessment related to organizational learning. In order to ensure the contribution of the dimension average score for the total, we established the correlation between these scores. This correlation allowed us to show the combination of the dimension as an analysis' variable in the context of organizational learning.

In each dimension a test for equality of means was carried in order to prove if organizational learning differs between the company size, the respondents' hierarchical level and seniority. For this, we used the analysis of variance (ANOVA) procedure by one-way, and adopted the dimension score as the dependent variable, and the respondents and Pearson correlation as a factor.

Aiming at evaluating which respondents by country, company size and hierarchical level differ, we used the Dunet method of multiple comparisons. The significance level to decide whether the equality between groups is acceptable, it was considered less than 5%.

The measurement scale used to evaluate organizational learning is a Likert-type scale, which is an ordinal scale. The analysis was based on average scores, and these averages are influenced by extreme values (1 and 5 in the ordinal scale), so we adopted as a reference to ratify the mode of the frequency distributions in order to determine the direction or trend in the responses.

The previous statistical procedures were realized using SPSS.

Below we highlight the following contrasting hypotheses, considering different methodological models of organizational learning, having a significance level of 0.05 as a reference.

- H1: Organizational culture is positively related to organizational learning.
- H2: Organizational culture is positively related to the sources for organizational learning.
- H3: Organizational culture is positively related to the conditions for organizational learning.
- H4: The sources for organizational learning are positively related to organizational learning.

As we developed this research two factors were defined, evaluating the country of origin and levels or variables of each country, and their order is: company size, years of experience and hierarchical level or position in the company.

In Table 10 we present the percentage of the selected population of executives who participated in both countries where the research was conducted. As evidenced in this table, there is almost a uniform rate, which ensures that the sampling units have the same probability of being selected, indicating that the random sampling methodology is unrestricted.

The sample is composed of 356 Brazilian and Colombian top managers who participated in executive educational programs, distributed as shown in Table 10.



Table 10 - Frequency distribution of top managers who took part of the study in Brazil and Colombia

Colombian Institutions	Frequency	Percentage	Valid Percentage	Accumulated Percentage
Uninorte EMBA 2006-2008	30	11,9	11,9	11,9
U San Pablo CEU 2006-2008	26	10,3	10,3	22,1
Uninorte E-MBA 2007-2008	28	11,1	11,1	33,2
Uninorte MBA Prof 2007-2009	39	15,4	15,4	48,6
UTP 2007-2009	23	9,1	9,1	57,7
Uninorte EMBA 2008-2010	20	7,9	7,9	65,6
Admon en GH USB 2008-2010	34	13,4	13,4	79,1
Uninorte MA Gestión humana 2008-2009	32	12,6	12,6	91,7
Uninorte group 35 MBA 2008-2010	21	8,3	8,3	100,0
Total	253	100,0	100,0	
Brazilian Institutions	Frequency	Percentage	Valid Percentage	Accumulated Percentage
Modelos de perso USP group 02	15	14,6	14,6	14,6
Modelos de perso USP group 03	13	12,6	12,6	27,2
Uninove E- MBA 2006-2008	13	12,6	12,6	39,8
Universidad Federal de Grande do Sul 2006-2008	11	10,7	10,7	50,5
MBA RH group 22 USP 2006-2008	14	13,6	13,6	64,1
MBA RH group 24 USP	22	21,4	21,4	85,4
Sao Paulo MBA	15	14,6	14,6	100,0
Total	103	100,0	100,0	
General total	356			

Source: Authors' elaboration (2009).

The hierarchical levels are shown in Table 4, in which we found that 36.5% belongs to the low management, followed by the middle management with 45.6%, and 16.4% with senior management, as we can see in Table 11.

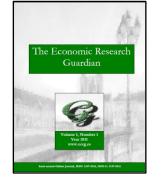


Table 11 - Hierarchical level in the organizations, in Brazil and Colombia

Brazil		Frequency	Percentage	Valid Percentage	Accumulated Percentage
Valid	Senior Management	14	13,6	13,6	13,6
	Middle Management	57	55,3	55,3	68,9
	Low Management	32	31,1	31,1	100,0
	Total	103	100,0	100,0	
Colombia		Frequency	Percentage	Valid Percentage	Accumulated Percentage
Valid	Senior Management	33	13,0	13,0	13,0
	Middle Management	98	38,7	38,7	51,8
	Low Management	122	48,2	48,2	100,0
	Total	253	100,0	100,0	

Source: Authors' elaboration (2009).

The experience of the respondents is presented in Table 5, in which we can see that the majority has between 1 and 3 years, and more than 10 years of work experience.

Table 12 - Experience in Brazil and Colombia

Brazil		Frequency	Percentage	Valid Percentage	Accumulated Percentage
Valid	From 1 to 3 years	44	42,7	42,7	42,7
	From 4 to 6 years	28	27,2	27,2	69,9
	From 7 to 9 years	15	14,6	14,6	84,5
	More than 10 years	16	15,5	15,5	100,0
	Total	103	100,0	100,0	
Colombia		Frequency	Percentage	Valid Percentage	Accumulated Percentage
Valid	From 1 to 3 years	132	52,2	52,2	52,2
	From 4 to 6 years	42	16,6	16,6	68,8
	From 7 to 9 years	22	8,7	8,7	77,5
	More than 10 years	57	22,5	22,5	100,0
	Total	253	100,0	100,0	

Source: Authors' elaboration (2009).

The size of the companies where the respondents belong to is mostly large, with 67.8% (see Table 13).



Table 13 - Company size, in Brazil and Colombia

Brazil		Frequency	Percentage	Valid Percentage	Accumulated Percentage
Valid	Large	74	71,8	71,8	71,8
	Middle	22	21,4	21,4	93,2
	Small and micro	7	6,8	6,8	100,0
	Total	103	100,0	100,0	
Colombia		Frequency	Percentage	Valid Percentage	Accumulated Percentage
Valid	Large	180	71,1	71,1	71,1
	Middle	34	13,4	13,4	84,6
	Small and micro	39	15,4	15,4	100,0
	Total	253	100,0	100,0	

Source: Authors' elaboration (2009).

In the following we present the contrast of hypotheses for each of the involved countries, by doing an analysis of variance, with reference to each of the methodological models of organizational learning, in contrast to the company size, participants' experience and hierarchical level of the participants.

In the Brazilian case, for example, the variables or assessed levels: sources of organizational learning, organizational learning conditions, culture for organizational learning and capacity of organizational learning, in contrast to the company size, we can say that there is statistical evidence to not reject hypotheses for a significance level of 5%, due to the P-values which are discarded - 0.557, 0.557, 0.703, 0.832, for each level of the methodological model of organizational learning.

Thus, for this level of significance we can affirm that in this study the null hypotheses are induced in the sample information.

- H1: The sources of organizational learning allow that this is present in organizations: we should not reject the hypothesis.
- H2: The conditions for organizational learning allow that this is present in organizations: we should not reject the hypothesis.
- H3: The organizational culture allows that organizational learning be more feasible: we accept the hypothesis.
- H4: The capacity of organizational learning is determined by sources, conditions and organizational culture: we should not reject the hypothesis.

In the Colombian case, as observed in the analysis of variance, ANOVA, for variables such as sources of organizational learning, organizational learning conditions, culture for organizational learning and organizational learning capacity, in contrast to company size, the sample shows significant P-values as is the case of 0.00, 0.001, 0.00, 0.0000 for each of the learning models, which results in high significance. This implies a rejection of the null hypothesis raised to a level of significance of 5%.



The decisions taken for each of the null hypothesis were:

- H1: The sources of organizational learning allow that this is present in organizations: we reject the hypothesis.
- H2: The conditions for organizational learning allow that this is present in organizations: we reject the hypothesis.
- H3: The organizational culture allows that organizational learning be more feasible: we reject the hypothesis.
- H4: The capacity for organizational learning is determined by the sources, conditions and organizational culture: we reject the hypothesis.

The rejection of each null hypothesis implies that one can assume in the scope of evidences in the sample that:

- There is no significant relationship between company size and culture for organizational learning.
- There is no significant relationship between company size and learning capacity.
- There is no significant relationship between company size and conditions for organizational learning.
- There is no significant relationship between experience and learning sources.

In Brazil, for example, the variables or assessed levels: sources of organizational learning, organizational learning conditions, culture for organizational learning and capacity of organizational learning, in contrast to the participants' experience in the organization where they work at, the P-values of 0.446, 0.481, 0.481, 0.952 imply a no rejection of the null hypothesis.

This means we can assume a standard significance level of 0.05, and may affirm that the null hypothesis proposed are:

- H1: The sources of organizational learning allow that this is present in organizations: the null hypothesis is not rejected.
- H2: The conditions for organizational learning allow that this is present in organizations: the null hypothesis is not rejected.
- H3: The organizational culture allows that organizational learning be more feasible: the null hypothesis is not rejected.
- H4: The capacity of organizational learning is determined by the sources, conditions and organizational culture: the null hypothesis is not rejected.

For Colombia, noting the P-values obtained in the table of variance, we imply that:

- There is no significant relationship between experience and culture for organizational learning.
- There is no significant relationship between experience and learning capacity.

Similarly, the null hypothesis is rejected for the variable sources of organizational learning, because P-value is 0.007. However, while conditions of organizational learning, in contrast to the participants' experience, we cannot reject the null hypothesis, as there is a relationship between learning conditions and their experience in the organization; this is evidenced by a P-value of 0.082, greater than the significance level of 0.05.

So the decisions taken in the null hypotheses for significance level of 5%:

- H1: The sources of organizational learning allow that this is present in organizations: the null hypothesis is rejected.



If not:

- H2: The conditions for organizational learning allow that this is present in organizations: the null hypothesis is not rejected.

The analysis of variance shows for the Brazilian case, the variables or assessed levels: sources of organizational learning, organizational learning conditions, culture for organizational learning and capacity of organizational learning, in contrast to the participants' hierarchical level, we can say that there is statistical evidence to not reject the null hypotheses for a significance level of 5%, due to the P-values which are discarded - 0.071, 0.335, 0.089 and 0.113, for each level of the methodological model of organizational learning.

This leads to taking the following decisions within the sample evidences.

- H1: The sources of organizational learning allow that this is present in organizations: we do not reject the null hypothesis.
- H2: The conditions for organizational learning allow that this is present in organizations: we do not reject the null hypothesis.
- H3: The organizational culture allows a more feasible organizational learning: we do not reject the null hypothesis.
- H4: The capacity for organizational learning is determined by the sources, conditions and organizational culture: we do not reject the null hypothesis.

For the Colombian case, the variable sources of organizational learning has a level of significance with P-value of 0.007, indicating that there is a significant relationship between sources of organizational learning and hierarchical level.

The organizational learning models, organizational learning conditions and organizational learning capacity are very significant, with P-values of 0.734 and 0.073.

Table 14 - Correlation among sources, conditions, culture and capacity for organizational learning in Brazil in Colombia

		REGR factor score 1 for analysis 1 FUENTES	REGR factor score 1 for analysis 2 CONDICIONES	REGR factor score 1 for analysis 3 CULTURA	REGR factor score 1 for analysis 4 CAPACIDAD
REGR factor score 1 for analysis 1 FUENTES	Coeficiente de correlación	1,000	,843(**)	,783(**)	,942(**)
	Sig. (bilateral) N	.	,000	,000	,000
REGR factor score 1 for analysis 2 CONDICIONES	Coeficiente de correlación	,843(**)	1,000	,821(**)	,943(**)
	Sig. (bilateral) N	,000	.	,000	,000
REGR factor score 1 for analysis 3 CULTURA	Coeficiente de correlación	,783(**)	,821(**)	1,000	,912(**)
	Sig. (bilateral) N	,000	,000	.	,000
REGR factor score 1 for analysis 4 CAPACIDAD	Coeficiente de correlación	,942(**)	,943(**)	,912(**)	1,000
	Sig. (bilateral) N	,000	,000	,000	.
		386	386	386	386

Source: Authors' elaboration (2009).



Ho: There is no correlation between sources, conditions, culture and capacity of learning.
Ha: If there is a correlation between sources, conditions, culture and capacity of learning.

In Table 14, the Pearson test evidences that there is a strong correlation between sources and conditions (0.843, and a significance level of 0.000), as well as between sources and culture (0.783, and a significance level of 0.000). We can also observe a strong correlation between sources and capacity (0.942, and a significance level of 0.000); the same happens between conditions and culture (0.821, and a significance level of 0.000). And as well as between conditions and capacity (0.943, and a significance level of 0.000), and between culture and capacity. From what we observe in both countries, there is a high correlation between sources and conditions, sources and culture, and conditions and culture. This implies that one should reject the null hypothesis, as there is no correlation between sources, conditions, and culture.

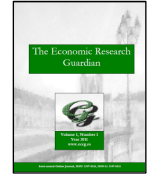
5. Conclusions

As a first conclusion we can say that the objectives were fully achieved. The theoretical model adopted (Garzón, 2010) describes how to characterize the capacity of organizational learning. Thus, when configured as a dynamic capability in an iterative relationship with knowledge, it allows generating, renewing and rebuilding core competences, supporting the constant search to improve organizational results.

The model proposed by Garzón (2010) seeks to balance each of the trends identified in the state of the art and in the speculative arguments dealt in this work, forming a body of theory which states that companies that are willing to promote organizational learning, should be embedded in seven identified sources, facilitating six conditions proposed, by designing a structure oriented to learning through the development of competences to learn and unlearn, encouraging the creation and functioning of communities of practice, learning and commitment, documenting and stimulating the use of organizational memory, for which there is a need to create a culture that allows sharing knowledge based on people management processes, driving values and principles that apply, reaching a climate conducive to learning. One should note that through these mechanisms are necessary to fill the gaps between academic and pragmatic visions on knowledge, although some authors think they are distinct activities.

There is little empirical evidence provided to a study in a specific context, where besides the creation of a validated instrument and contrasted to the characterization of organizational learning conceived as a complex phenomenon, it can be used in other series of studies with these characteristics.

We found empirically a highly significant relationship between organizational learning, especially with variables that characterize it, and a strong correlation between sources and conditions (0.821, and a P-value of 0.000), and between sources and culture (0.802, and a P-value of 0.000). One can also observe a strong correlation between conditions and culture (0.8421, and a P value of 0.000). From what we observe in both countries, there is a high correlation between sources and conditions, sources and culture, and conditions and culture.



We verified that the organization's capacity to learn is directly influenced by the sources, conditions and culture for organizational learning, including individuals, teams, organizations and inter-organizational learning as players.

Regarding the specific objectives we verified that:

- Knowing how organizational learning takes place at different levels, such as: individual, team, organizational and inter-organizational; we discovered that instead of learning levels, there are organizational learning players (people, teams, organization), and even oriented actions that should be stimulated to encourage learning in organizations.

- Regarding the identification of which sources of learning are perceived by people as necessary for the organizational learning processes, we found that from ten of the sources of organizational learning, the companies where the surveyed top managers work for present seven of them: crises and problems, customers, specialized units, competition, experience and practitioners, technology and history.

- In the specific objective oriented to determine conditions to drive organizational learning, while competences to learn and unlearn; structure; learning communities; communities of commitment; communities of practice, and organizational memory, and its impact on learning, one can state that there are six sub-variables that facilitate learning: competences to learn and unlearn, structure, communities of practice, learning communities, communities of commitment, and organizational memory.

- About culture for organizational learning we can conclude that three sub-variables were identified in the proposed model; the companies where the top managers work for, those that facilitate organizational learning are: the cultural system and organizational climate.

- Regarding the designed goal to determine the influence of organizational learning on the organization's results, we conclude that for the companies where Brazilian and Colombian top manager work for, the capacity of organizational learning is directly influenced by the sources, conditions and culture for organizational learning, having people, teams, organizations and inter-organizational learning as players.

Another contribution is methodological, taking into account the nature of the quantitative data collected, and the results allowed the development of statistical analysis that offer as results the creation of the construct of characteristics that constitute organizational learning.

With respect to the construction of a measuring instrument, we did it according to what establishes the methodology of psychometric tools, developing a first version and debugging it by quantitative techniques, such as factorial analysis, cluster analysis, rotated matrix, the matrix of principal components, achieving convergent and discriminant validity for a number of significant items, to be finally applied in the study, so we can conclude we obtained the validation of instruments to characterize the capacity of organizational learning and determine how they influence organization's results.

As a result of these tests, we provided reliable tools to determine the incidence of the factors that determine the sources, culture and learning conditions for generating organizational capabilities, in the context of the theoretical framework developed and its impact on organizational learning.

These results represent great opportunities for future research, because in this advanced research process we achieved proper techniques that allowed to collect data from 356 top managers in Brazil and Colombia, in order to characterize the capacity of organizational learning in Brazilian and



Colombian organizations, to which in future research one may consider these instruments and procedures used aiming at ensuring traceability in the measurement of the studied phenomenon in other organizations.

The obtained results in this study are constituted at a point from where new research in short and long-term should be developed, trying to reply similar studies with a broader region per country.

For this, we propose that future research have the following variables:

- Determine the impact of organizational learning with objective indicators, both measuring quantitative and qualitative performance.
- Determine the impact on variables of the organizational learning environment.
- Determine the role of alignment on learning strategies and the organization.
- Explore the designed questionnaire with a level of group analysis. In this study, the level of analysis we considered is the organization, but the data were collected by one of its members.

Among limitations and implications of this research there is cross-section, due to its gradual and cumulative nature of learning, because longitudinal studies may provide other types of elements to observe, over time, the influence of organizational learning on the results of the organizations we studied. Likewise, in this study we did not consider environment variables or objective indicators of performance.

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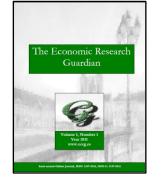
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