

# Gestión del conocimiento organizacional: las incapacidades de aprendizaje y su relación con los estilos de aprendizaje en la industria papelera, cartonera y de celulosa de México

*Organizational knowledge management: the disabilities of learning and its relationship to the styles of learning in the paper, carton and cellulose industry in Mexico*

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## Resumen

Este trabajo realiza un diagnóstico en la industria de celulosa, cartón y papel en México sobre las incapacidades de aprendizaje organizacional y los estilos de aprendizaje dominantes, además explora la relación entre estas variables, según Yeung, Ulrich, Nason y Von Glinow (2000), y sus efectos en el aprendizaje organizacional.

El instrumento de medición empleado se basó en Yeung *et al.* (2000), adaptado por Gómez (2008), y las respuestas se analizaron con un modelo de regresión lineal con las siete incapacidades de aprendizaje como variables predictoras de los cuatro estilos de aprendizaje. Se encontró evidencia estadística de una relación entre las incapacidades de aprendizaje y los estilos de aprendizaje organizacional en la industria estudiada.

**Palabras clave:** incapacidades de aprendizaje; estilos de aprendizaje; aprendizaje organizacional.

## Abstract

This work makes a diagnosis in the industry of pulp, cardboard and paper in Mexico on the organizational learning disabilities and dominant learning styles, it also explores the relationship between these variables, according to Yeung, Ulrich, Nason and Von Glinow (2000), and its effects on organizational learning. The measurement instrument used was based on Yeung et al. (2000), adapted by Gómez (2008), and the responses were analyzed with a linear regression model with the seven learning disabilities as predictor variables of the four learning styles. Statistical evidence of a relationship between the learning disabilities and organizational learning in the industry studied styles were found.

**Key words:** learning disabilities, learning styles, organizational learning.

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## Introduction

The objective of the present study is to investigate the possible relationship between the learning disabilities and organizational learning styles in paper, carton and cellulose industry of the Mexican Republic, as well as determine what disability is presented with more intensity, as well as establishing what key organizational learning in the mentioned sector style. The Paper Chamber (2013), points out the importance of this sector and asserts that the world production of this industry amounted to 400 million tons in 1999. Against all odds and predictions of reduction in paper consumption due to the rise of the electronic age, since 1980 there has been a growth of 2.5% per year held in the production rate.

**Problem Statement** Globalization is the social, economic and political phenomenon that has undoubtedly affected most in recent times to the dynamics, interaction and the economy among the Nations, since in addition to changing his way of coexistence and communication, you have changed their way of doing business (Gómez, 2008). In addition, Puerto (2010) says that the global economy imposed by this phenomenon called globalization, it presents a dark horizon for individuals, organizations, institutions, companies and Nations, which must learn to drive if they wish to remain current in their areas of competence, otherwise they will fall on a precipice without background, where the expulsion of the markets is the unwanted end. Gomez (2008) says that currently the company is faced with a mixture of all of these factors,

reason why a significant number of them disappear from the market to failure to comply with the requirements imposed by the capricious and volatile environment; companies that manage to adapt better to the circumstances and to the new rules imposed by the highly competitive environment, will be the only ones able to survive, as Toffler notes (1999). For Yeung, et al. (2000), knowledge is the new factor of success of organizations of a postmodern society; argues that those who manage to build it better will survive and succeed

Huntington (2001) states that as a result of the constant changes, we are now in a new era, a transition from the industrial era to the knowledge era.

In this new era of information and knowledge, the characteristic that distinguishes the winners organizations that generate knowledge is better. Choo (1999), learning occurs when employees of organizations react to changes that occur in the environment, when they realize their mistakes and correct them, or when reacting to changing demands and tastes of customers.

But when organizations are unable to react to the changes and demands of a volatile and changing environment, mortgaging their future, which often occurs when organizations do not exploit the potential they have, that is, when not benefit from their ability learning, because they face barriers to learning disabilities or preventing them make better use of the potential they have within themselves (Yeung et al., 2000).

### **Objective research question and hypotheses**

Objective: To investigate the possible relationship between learning disabilities and organizational learning styles in the paper industry, cellulose cartonera and Mexico.

Particularly Objective: To determine disability occurs more intensity in the companies studied.

Specific objective: To establish what is the dominant style of organizational learning in the corporate sector studied.

Research questions:

Is there a relationship between learning disabilities and organizational learning styles in the paper industry, cellulose cartonera and Mexico?

In the event of what disabilities are presented in further and more significantly in the different learning styles in the paper industry, cellulose cartonera and Mexico?

What organizational learning style is dominant in the sector studied?

hypothesis:

H1: There is a significant relationship between learning disabilities and organizational learning styles in the paper industry, cellulose cartonera and Mexico.

H2: The learning disability that occurs with greater intensity is blindness in the companies studied.

H3: The style of organizational learning that occurs with greater intensity is the continuous improvement in the companies studied.

### **Justification**

The decision to study this industry was taken due to the growing importance of this sector, since today's market paper sector and its derivatives is \$ 11,500 billion annually, equivalent to 6.3% of manufacturing GDP and represent 3.3% of the industrial GDP.

The paper industry produced worldwide sales of 339.1 billion dollars in 2010, and in the same year only market in Latin America grew 28.8% (Price Waterhouse Coopers, 2011).

In Mexico, the House of Paper includes most of the largest domestic producers of paper, cardboard, corrugated and derivatives, who produce 98% of the national production of this industry. With 27 member companies to this institution, the recorded data assert that the industry generates more than 64 000 direct jobs and 235 000 indirect through 58 plants in 20 states (Paper House, 2013).

De la Madrid (2011) argues that the total sales in this sector in 2008, which amounted to 3000 million, 38% occurred in North America, 34% in Europe and 18% in Asia. Only 4% originated in Latin America and 6% in Africa and Oceania.

### **Reviewed literature**

Today, learning has become key for organizations to survive and become learning institutions. As Yeung et al pose. (2000) and Hernandez and Marti (2006), this is not a panacea for all the weaknesses of the organization, but does guarantee to give a better response to their environment.

The use of knowledge as the new source of wealth production is completely changing the structure of society and, therefore, the organizations themselves. Valdes (2002) states that if prior knowledge to be applied in the new era applies to make, and those institutions that are unable to generate it are doomed to disappear. The creation of knowledge is a distinguishing feature of learning organizations, which are called intelligent.

The knowledge currently stands out as a key to competitiveness factor in organizations, and Probst, Raub and Romhardt (2001) advise that these are geared to generating new skills,

products, ideas and more efficient processes. Also they agree that the development of knowledge is a pillar that complements the acquisition of knowledge itself.

For its part, Choo (1999), and Beazley, Boenisch and Harden (2003), agree in saying that learning the social body occurs when employees of the organization react to changes that take place in the environment, to detect and correct errors and to change strategies, assumptions or rules, all vital for productivity, innovation and performance of companies and employees.

Yeung et al. (2000) assert that individuals and organizations have four learning styles:

1. Experimentation, where you learn testing new ideas and adopting a receptive environment position.
2. The acquisition of skills, where people and teams learn new skills; It focuses on the experience of others.
3. Reference marks (benchmarking), where you learn by finding out how they work other then trying to adapt such knowledge.
4. Continuous improvements, where we learn constantly improving what already was done.

These styles only represent ideal types of learning. As people ever which are restricted to a single type of temperament when they operate in their daily lives, even with dominant temperament, companies and individuals rarely learn one style exclusively. Yeung et al. (2000) indicate that organizations should not be limited by proposing one of these styles, but on the contrary, should try to use all in some stage of life.

Etkin (2007) and Gomez (2008) agree in saying that organizations learn when ideas and knowledge generated by their employees are shared beyond the boundaries of the physical space of the organization; however, it is also necessary to understand that learning is going through many small failures and some of them can make the organization directs its annihilation, unless such failures are intelligent, ie, allowing learn from them and strengthened to face the future reality.

In addition, all organizations and businesses generate a greater or lesser extent organizational knowledge, but when faced with a complex volatile competitive environment, and, like the present, many end up failing and closing. In the knowledge era we live, survive only those organizations capable of generating and applying organizational knowledge (Yeung et al., 2000).

These authors argue that it is no accident that most organizations learn poorly, and match Argyris (1993) when they say that the incipient management training for managers and business owners, necessarily entails deficiencies in the generation of organizational knowledge (CO ). These are called barriers or learning disabilities.

The term barriers or learning disabilities refers to conditions that impede or hinder learning in the field of organizations and businesses and prevent the organization, regardless of learning style that is used, generates organizational knowledge. They are like a silent disease: do not give pain symptoms; however, they prevent some processes are carried out assertively and eventually render inoperable when the organization invade completely.

If these barriers are not identified in time and beyond, certainly organizations continue to generate organizational learning, but this will be deficient and will be fraught with shortcomings and mistakes, from its generation to its generalization.

In general, the authors agree on the effects that cause the barriers, although some more than others the breakdown. Then the model is presented Yeung et al. (2000), based on 7 disabilities:

1. Blindness: Prevents properly assess threats and opportunities in the environment, passing endless opportunities.
2. Candor: It occurs when there are deficiencies in the analysis of situations and generate solutions. In complex situations known rules without careful analysis apply.
3. Homogeneity: It takes into account the point of view of the owner or manager who is omniscient and expert in everything.
4. Tight coupling: The inflexibility and adaptability is not the tonic, which is derived from naive and incomplete analysis of reality.
5. Paralysis: Prevents take action or implement new procedures, not because the way to realize them is unknown, but because they spend too much time analyzing.
6. Learning superstitions: Prevents correctly interpret the meaning of the experience, plus another who blames everything bad that happens in the business, diffusing the situation wrong ideas.
7. Poor Diffusion: occurs when people learn new things, but not spread to other people and / or business areas and therefore does not arise in the learning group.

## **Methodology**

The present study is correlational since, according to Hernandez, Fernandez and Baptista (2006), seeks to establish a relationship between the variables. Furthermore, it is cross

because making information was limited to a single occasion, and it is also not experimental, because it obtains and analyzes information without changing any of the existing conditions.

The measuring instrument was applied was used by Yeung et al. (2000), in a study conducted on 300 companies, tested and validated according to the Mexican environment by Gomez (2008). It consists of 58 reagents, with a Likert scale of six options, rising gradually as follows: "I do not know / not applicable, little, little, some, a lot and a lot."

Together with 27 partners, 2 and 3 cooperative union members, with a presence in 20 states: the board of the Chamber of paper, which is the institution that unionizes leading manufacturers of paper and cardboard packaging used to determine the universe from Mexico. Among its partners recognized companies such as Kimberly-Clark de Mexico, BioPappel, Procter & Gamble, Copamex and Cardboard Ponderosa are, among others.

The collaboration of 25 companies of the 32 unionized to the House of paper and a presence in 15 states of Mexico, with a total of 420 answered questionnaires that directors, managers, department heads and supervisors (middle management, management and managers was achieved).

The data were captured and worked in the SPSS version 19.0, the reliability of the instrument was calculated using Cronbach Alpha test, the results can be seen in Table 1. Barraza-Macias (2008) argues that the  $\alpha$  value of less than .60 Cronbach is mediocre, of 60-65 is undesirable, of 65-70 is acceptable, to be respectable 70-80 and 80-90 is very good. This test was run for each dimension (styles and disabilities).

Table 1: Reliability of the measuring instrument

<b>Prueba utilizada</b>	<b>Dimensión</b>	<b>Valor obtenido</b>
Alfa de Cronbach	Estilos de Aprendizaje	0.868
	Incapacidades de Aprendizaje	0.784

Source: Authors.

## Results

In response to the research objective and hypotheses Tables 2 and 3, showing averages and frequencies of the dominant learning disabilities and learning styles that occur most frequently in the industrial sector studied were generated, which they include continuous improvement and learning style most frequently used and blindness as the most dominant disability.

Table 2: Learning Styles. Averages and frequency.

<b>Estilos de aprendizaje</b>	Promedio	Frecuencia
Mejora Continua	4.1	183
Marcas de Referencia	3.4	44
Experimentadoras	3.9	150
Adquisición de Competencias	3.4	45

Source: Authors.

Table 3: Learning Disabilities. Averages and frequency.

<b>Incapacidades de aprendizaje</b>	Promedio	Frecuencia
Ceguera	3.86	222
Candidez	3.53	51
Homogeneidad	2.89	13
Acoplamiento Estrecho	2.98	20
Parálisis	3.30	47
Aprendizaje de Supersticiones	3.03	42
Difusión Deficiente	3.46	27.00

Source: Authors.

To find out if there are statistically significant differences between groups corresponding to each type of learning styles and disabilities, an analysis of variance by F test was applied, according to same Lind, Marchal and Wathen (2005), is used to test whether two samples come from populations with equal variances (which is considered null). The analyzes are presented in Tables 4 and 5 respectively.

In the first column culture types are shown in the second sources of variance, the third the sum of the squares already calculated is shown in the fourth column associated degrees of freedom are set to each source of variance indicated in the fifth column of the middle square in the sixth the F test results are presented, and, finally, in the seventh column the significance level showing the weight of evidence against the null hypothesis is presented .

Table 4: Analysis of variance with one factor. Learning Styles.

1	2	3	4	5	6	7
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
Mejora continua	Entre grupos	240.862	274	.879	5.892	.000
	Intra grupos	20.142	135	.149		
	Total	261.004	409			
Marcas de referencia	Entre grupos	390.283	274	1.424	5.180	.000
	Intra grupos	37.125	135	.275		
	Total	427.408	409			
Experimentadoras	Entre grupos	393.605	274	1.437	6.229	.000
	Intra grupos	31.131	135	.231		
	Total	424.736	409			
Adquisición de competencias	Entre grupos	305.973	274	1.117	4.090	.000
	Intra grupos	36.857	135	.273		
	Total	342.831	409			

Source: Authors.

Table 5: Analysis of variance with one factor. Learning disabilities.

1	2	3	4	5	6	7
		Suma de cuadrados	gl	Media cuadrática	F	Sig.
Mejora continua	Entre grupos	240.862	274	.879	5.892	.000
	Intra grupos	20.142	135	.149		
	Total	261.004	409			
Marcas de referencia	Entre grupos	390.283	274	1.424	5.180	.000
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Adquisición de	Entre	305.973	274	1.117	4.090	.000

competencias	grupos					
	Intra grupos	36.857	135	.273		
	Total	342.831	409			

Source: Authors.

As can be seen, the mean difference is significant in all groups, which implies that they are differentiated according to the statistical procedure applied, so that the above results are reliable.

In order to test the hypotheses of the study, linear regression models were applied using the method of ordinary least squares to evaluate the linear relationship of dependency, which according to Hair, Anderson, Tatham and Black (2006), is by far the technique most used and versatile, applicable in any field of business, dependence can be used to analyze the relationship between a criterion variable and one or more independent variables.

Note that the regression models were applied as follows: they were contrasted each of the four types of learning styles for each of the seven disability; the independent variables were disabilities. This resulted in a set of 28 models (7 types of disabilities for 4 learning styles). These results are shown in Table 6.

Table 6: Summary of regression model Variable

Variable Dependiente	Experimentadoras			Marcas de referencia			Adquisición de competencias			Mejora continua		
	1	2	3	4	5	6	7	8	9	10	11	12
Variable Independiente	r <sup>2</sup>	B	Sig.	r <sup>2</sup>	B	Sig.	r <sup>2</sup>	B	Sig.	r <sup>2</sup>	B	Sig.
Ceguera	0.424	0.670	0.000	0.389	0.643	0.000	0.345	0.543	0.000	0.380	0.498	0.000
Candidez	0.122	0.483	0.000	0.135	0.509	0.000	0.122	0.434	0.000	0.151	0.422	0.000
Homogeneidad	0.024	0.166	0.002	0.062	0.265	0.000	0.024	0.147	0.002	0.014	0.100	0.015
Acoplamiento estrecho	-	-	0.866	0.005	0.093	0.137	-0.002	-0.005	0.926	0.003	-0.053	0.280
Parálisis	0.000	0.024	0.746	0.012	0.162	0.030	0.001	0.039	0.564	0.005	0.082	0.165
Aprendizaje supersticiones	0.026	0.169	0.001	0.002	-0.049	0.344	0.019	-0.138	0.003	0.024	-0.129	0.002
Difusión deficiente	0.148	0.542	0.000	0.139	0.527	0.000	0.177	0.532	0.000	0.172	0.458	0.000

Source: Authors.

It is assumed according to the literature reviewed, there is a relationship between organizational learning disabilities and organizational learning styles. Based on the above, this model includes the

independent variable "organizational learning disabilities" as an explanatory styles of organizational learning.

$$Y_{\text{learning styles}} = \alpha + b_1 X_{\text{learning disabilities}} + \epsilon \quad (1)$$

Where:

$Y_{\text{E de A}}$  = Organizational learning styles

$\alpha$  = intercept

$X_{\text{Inc. de ap.}}$  = Organizational learning disabilities

$\epsilon$  = Error term

$b_1$ , = Coefficient associated with the independent variable

With the following results:

$$Y_{\text{E de A}} = 1.999 + .541 X_{\text{Inc. de ap.}} \quad (2)$$

(t) (8.816) (8.245)

$R^2 = .143$

Statistically significant impact of the independent variable "Organizational Learning Disabilities" about organizational learning styles. Importantly, analysis objectives fully to assess the statistical significance of the independent variable on the dependent variable with the student t statistic and associated p-value of .000 is met.

## Conclusions

Based on the statistical results obtained, we can state that there is evidence of a statistically significant relationship between learning disabilities and organizational learning styles, confirming what is stated in the literature reviewed.

Argyris (1999) and Gómez, Villarreal and Villarreal (2014) agree in saying that all organizations and businesses generate a greater or lesser extent organizational knowledge, be aware or ignore it, you are ready for it or not, and are disabilities which prevent knowledge is generated and generalize better.

According to the results, we can say that learning disabilities influence organizational learning styles that companies use to solve their problems and answer their customers.

Gomez (2008), states that one should not forget that the presence of a single failure may be sufficient to reduce or even block learning in an organization, and that disabilities are as silent diseases that invade the organization. Their owners or managers do not realize what is happening, and when repaired in his presence is too late because the organization usually already infected a large extent and style of learning is affected.

Although the sector studied is highly competitive nature, and therefore the directors and managers of the different plants are academically and technically competent, issues such as learning disabilities and the way how are you affecting learning styles of companies, They are generally beyond their cultural background and, therefore, unknown to them. In practice you can see its effects and consequences, which eventually return to their inefficient companies and sometimes take them to close, but fail to discern what causes inefficiencies in production and administrative processes in their factories.

Here it is worth reflecting on how companies learn as it depends primarily on how to discover problems and how to invent solutions to stay in business. It is also necessary that business leaders are aware of these vital issues for the development of any business, especially if they operate in a competitive environment, as is the case in the present study.

Finally, the answer to the second of the research objectives and the related research question and hypothesis, is: We must define the style of organizational learning that occurs with more intensity in the companies studied. From statistical calculations, we can conclude that continuous improvement is the dominant learning style in the paper, and cellulose cartonera industry in Mexico. This speaks to a particular way of carrying out the daily work by the industry study, which is to master a way of doing things; until it has control over all production and marketing variables, a gradual process of improvement in each of the activities carried begins.

The paradox is that the dominant learning style in the industry studied is typical of companies that face stable markets, without significant changes and moderate competition; however, the characteristics of the markets that these companies are volatile and highly competitive face.

Perhaps the explanation for this is that this industry is generally subject to a number of environmental tax regulations, financial, accounting and forcing him to make decisions using touch, measuring risk in every change you want to make.

The answer to the third objective of research and the corresponding hypotheses and research question is: To determine the disability that occurs with greater intensity in the companies studied. Obtained as a result of statistical calculations, we can say that blindness is the inability that occurs most frequently, and which usually does when the company is engrossed, concerned with survival. Thus, it ends up suffering blindness workshop, that is, problems absorbing too much energy and attention, distracting environment of volatility, a determining factor for businesses to come to close or do not obtain the predicted results.

Apparently, the above is not typical of the companies studied, but it is good to note that blindness accompanied by the candor (second disability intensity), takes charge of the companies to help

assess the full scope of competition and the environment where they operate, jeopardizing their market presence.

At this point we must emphasize that the presence of learning disabilities in organizations is an issue that should concern the owners, managers and students of organizational learning and knowledge preventing generate better in business. Unfortunately, this issue is not apparently linked directly to sensitive issues such as productivity or profitability of companies and therefore unnoticed by the heads of companies who end up suffering the consequences without knowing its causes.

Table 3 shows that blindness is the disability that occurs with greater intensity in all studied learning styles sector, we can conclude that the deficiency does not correctly evaluate the threats and opportunities of the environment is the problem more He is suffering strong industry in question; also, regardless of whether this is a competitive sector, leaving countless opportunities to profit.

In other words, if industry members studied become aware of the shortcomings of organizational learning suffering and work at least a little overcome, they would be positioned at a competitive advantage over its competitors.

Consequently, it is imperative that managers and directors of these companies know the causes of organizational deficiencies that affect them so that they can overcome and become more competitive, especially now that our country needs a more efficient and competitive industry.

The difficulties that this study found consisted mostly of poor cooperation from respondents, and their reluctance to provide information, in their perception considered unimportant as apparently not directly reflected in the rates of productivity and profitability.

For now, some questions remain unanswered although they can be analyzed in future studies; for example, how the organizational culture is related to learning styles or learning disabilities, topics that can contribute more fully and deeply explain the study variables, or even link these with others, such as survival or company size, or marketing strategies.

The most important theoretical contribution of this work is to verify the influence of disability on learning styles, confirming the study by Yeung et al. (2000), and provide the solid basis for decision-making in companies.

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