

LEARNING CULTURE AND ORGANIZATIONAL PERFORMANCE IN SMALL BUSINESSES¹

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ABSTRACT

The presence of the accurate information technology does not guarantee the efficient transformation of data and information into knowledge. An internal environment that boosts the learning process activities –data collection, distribution, interpretation, action and reflection- and encourages the use of certain tools –metaphor, dialogue, interactive systems and information technology- should be promoted by existing management. The purpose of this study is to provide empirical evidence of the relationship between the existence of an organizational culture that encourages learning –we use the term “learning culture”- and organizational performance in small businesses. With this, we would like to stimulate small businesses CEOs to increase their efforts to create a culture in which learning features prominently. A multilevel learning culture model has been developed distinguishing between “individual learning culture” and “learning culture at the organizational level”. A scale to measure learning culture is also provided. Organizational performance has been evaluated through customers’ satisfaction, employees’ satisfaction and objectives achievement. A survey instrument was administered to 151 CEOs within small businesses of Information Technology activity sector. Differences between its two sub-sectors –Software and Hardware- have been also analyzed. Hierarchical regression analysis has been undertaken for learning culture predicting organizational performance. Our results show that the activity sector is a moderator factor of the relationship between learning culture and performance in small businesses. Individual learning culture has a larger effect on employees’ satisfaction and customers’ satisfaction than the learning culture at the organizational level. This last one effects mainly on the level of objectives achievement. In general, our study shows that individual learning has more influence on small business performance than the learning culture at the organizational level.

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1. INTRODUCTION

Information technology allows companies to identify, acquire and incorporate data and information as well as to transform tacit knowledge into explicit knowledge. Nevertheless, the presence of the accurate information technology does not guarantee the efficient transformation of data and information into knowledge. A culture in which learning features prominently is required. An internal environment that boosts the learning process activities – data collection, distribution, interpretation, action and reflection- and encourages the use of certain tools –metaphor, dialogue, interactive systems and information technology- should be promoted by existing management.

On other hand, the theoretical academy literature outlines the positive influence of knowledge management on organizational performance but there is a lack of empirical evidence.

The aim of this research is to provide empirical evidence of the relationship between the existence of an organizational culture that encourages learning –we use the term “learning culture”- and organizational performance in small businesses. To achieve this, the following steps have been undertaken:

- a multilevel learning culture model has been developed,
- a scale to measure the “learning culture” is provided,
- intellectual capital components have been taken into account to determine the most relevant organizational performance items to be considered, and
- an empirical study has been accomplished.

The impact of small businesses² in our economies as well as their limitations to invest in the implementation of a learning culture justify our interest to identify factors that can help in the success of these firms.

2. CONCEPTUAL BACKGROUND

As a base for this research, organizational learning is defined as the process that increases the knowledge of the organization and its members through the interpretation, comprehension and assimilation of tacit and explicit information. All this, in order to generate knowledge that can be codified and institutionalized in norms of behavior –organizational routines-.

Taking into account the orientations of researches such as Kim (1993), Nevis et al. (1995), Onge (1996), Crossan et al. (1999), and Martínez (2002), a multilevel learning model has been developed. Two levels have been included, the individual learning and the learning at the organizational level. “Individual learning” is the process where tacit and/or explicit knowledge is created by a person through the interpretation and assimilation of information

²Following the European Union concept for Small and Medium Size Enterprises (ENSR, 1997), we defined “small businesses” as those with less than 250 employees. In Europe around 99.79 percent of firms are small businesses and this type of organizations also comprises of 99.84 percent of the total businesses established in Spain and the 99.79 percent in the Region of Murcia (DGPYME, 2002a y 2002b).

(Kim, 1993). The processes where knowledge is generated by socialization, externalization and combination –as defined by Nonaka and Takeuchi (1995)- have been considered in this research under the title of “learning at the organizational level”.

Individual learning culture is made up of all those environmental components that create the accurate atmosphere for reflection, intuition and interpretation. After studying Nonaka (1991 and 1994), Nonaka and Takeuchi (1995), Krogh (1998), Zárraga (2000), Nevis et al. (1995), DiBella and Nevis (1998), DiBella et al. (1996), DiBella (1995 and 1997), the following factors have been considered as the main ones for an organizational culture that encourages individual learning:

- clear definition of goals and objectives
- level of autonomy
- acceptance of failure
- rotation
- creativity
- taking skills, knowledge and attitudes into account in the selection process
- trust, empathy, courage and openness values
- resistance to change
- reward systems

The components of the organizational culture that promote learning at the organizational level are those that facilitate sharing of information, consensus and institutionalization of the knowledge within the members of the organization as well as with members of others organizations, such as customers. Taking into account the considerations of Lave and Wenger (1991), Hedlund (1994), Grand (1996), Tsai (1997), Ruggles (1998) and Liedtka (1999), the coming factors have been contemplated as those that create a culture for learning at the organizational level:

- teamwork
- organizational memory
- communication system
- experimentation
- training
- communication and leadership skills
- informal relationships

- learning from customers

Resource-based theory posits that internal factors are the trigger for the organizational competitive advantages. Nevertheless, these factors have to possess certain characteristics in order to supply a sustainable competitive advantage (Barney, 1991; Grant, 1991 and 1995; Amit and Schoemaker, 1993; Fernández-Rodríguez, 1993; Peteraf, 1993). Organizational knowledge can be considered as a resource and a capability because it does have these required features. As a resource it can be controlled and managed by the organization (Grant, 1991). It also fulfils the heterogeneity condition –it is unique and different for each organization and in each period of the time-. Knowledge is not available for all the organizations under the same conditions – perfect mobility- (Barney, 1991; Peteraf, 1993; Ventura, 1998). Knowledge is also a capability because it “coordinates and exploits the recourses” (Stalk et al., 1992) in order to reach the desired organizational target (Amit and Shoemaket, 1993). Learning is an organizational capability too. It is a dynamic and inimitable process which depends on several internal and external factors.

This theoretical relationship between organizational learning and organizational performance is empirically tested in this study, analyzing learning culture power to predict organizational performance.

3. HYPOTHESES

Given the preceding framework, the coming proposition and hypotheses have been proposed for this study.

Proposition Learning culture has a positive effect on organizational performance.

H_{1a}: Learning culture has a positive effect on customers' satisfaction

H_{1b}: The relationship between learning culture and customers' satisfaction is moderated by the activity sector

H_{2a}: Learning culture has a positive effect on employees' satisfaction

H_{2b}: The relationship between learning culture and employees' satisfaction is moderated by the activity sector

H_{3a}: Learning culture has a positive effect on objectives achievement

H_{3b}: The relationship between learning culture and objectives achievement is moderated by the activity sector

4. METHODOLOGY

4.1 Sample and data collection

The target population consisted of the companies of Information Technology activity sector in the Region of Murcia (Spain), a total of 253 firms. One hundred and fifty one valid responses were obtained, yielding an overall response rate of 59.9 percent. The study assumed an error

of 5.1 percent for $p=q=50$ and a confidence level of 95.5 percent. A structured questionnaire consisting of close-ended questions was developed. A personal survey to the CEOs was conducted in June 2001.

Using K-means cluster analysis, two significantly different groups of companies were found according to the “percentage of sale of each product over the overall sales”. Discriminant analysis was utilized to validate the clusters. Table 1 shows the list of considered products as well as the results of these analyses. One group -69 firms- was perfectly identified as Software small businesses –their main products were “development of customized software and its modifications”, “consulting” and “telecommunications advanced services”. The other group -82 companies- was made up of Hardware firms whose sales were mainly focused on “hardware and its maintenance”. Information from these two sub-sectors was used in order to analyze the moderator effect of the “activity sector” variable. The study assumes an error of 7.5 percent for Software sub-sector and 6.8 percent for Hardware sub-sector for $p=q=50$ and a confidence level of 95.5 percent.

Table 1
Sub-sectors: K- means cluster and discriminant analyses

Variables (products)	Cluster 1 (Software)	Cluster 2 (Hardware)	Anova (sig.)
Hardware and its maintenance	14	75.88	0.000
Telecommunications advanced services	11.93	4.13	0.004
Integration system services	4.88	2.70	0.109
Software (operatives systems, office automation, standard packets)	13.03	9.59	0.229
Customized software and its modifications	24.03	4.02	0.000
Consulting	11.54	0.63	0.000
Training	12.03	1.10	0.000
Contents	1.36	0.06	0.038
Others	7.20	1.89	0.034
	N= 69	N=82	
Discriminant analysis			
Box M.....	1000,642***		
Wilks' Lamba.....	0.171***		
% correct classification.....	99.3%		

Note: $p<0.1^*$; $p<0.05^{**}$; $p<0.01^{***}$.

4.2 Measures of variables

Learning culture

Two sub-scales have been developed, one for individual learning culture and the other for learning culture at the organizational level. Table 2 and table 3 illustrate the components and items of both of them, respectively. Using a 7 point Likert scale, CEOs had to assess the presence of each item in their firms. We had the “individual learning culture index” for each company as the sum of the values given to all the items included in this organizational learning level. The same process was followed to calculate the index for learning culture at the organizational level. The descriptive statistics and reliabilities of these two indexes are summarized in table 4. As it can be seen, internal reliability test showed acceptable Cronbach’s alpha for both of them.

Table 2

Items to value individual learning culture

Components	Items*
Most of your employees	
Clear definition of goals	–are well informed of the objectives and results of their departments
Level of autonomy	–participate in the definition of the content of their jobs and in the way of performing the processes –are submitted to few control processes when carrying out their jobs –are free to make decisions and take action as necessary to carry out their jobs
Acceptance of failure	–are encourage to identify and resolve problems –Managers know the existence of internal errors through customers and not through employees(i)**
Rotation	–are able to perform other tasks that require the same level of qualification than the current ones –are able to perform other tasks that require the same level of qualification than the current ones
Creativity	–provide creative solutions when unforeseen events happen
Selection	–Apart from technical knowledge, the attitude and the skills are taken into account when selecting
Trust, empathy, courage and openness values	–feel free to discuss with their superior the difficulties and problems related with their job –provide to the company all the information that they have –do not hide their errors –do not daunt with problems but they face them and resolve them
Resistance to change	–do not show resistance to changes in their jobs
Reward systems	–are rewarded according to their results

* Respondents were asked to rate on a 7 point Likert scale the degree of agreement with each statement where 1 is "total disagreement" and 7 is "total agreement". ** Inverse statement.

Table 3

Items to value learning culture at the organizational level

Components	Items*
Teamwork	<ul style="list-style-type: none"> -Departments are based on functions or projects (1=exclusively function, 7= exclusively projects) ▪ Members: <ul style="list-style-type: none"> - have different professional specializations - have knowledge and skills to accomplish different tasks within the team - members' suggestions are frequently implemented - members' rewards are based on the results of teamwork - are encouraged to discuss and dialogue - show clear evidence of mutual respect and desire of helping each other ▪ Decentralization to the members of decisions about: <ul style="list-style-type: none"> - the method of working - programming the work - controlling the objectives -Managers show a clear tendency to collaborate with other members of the organization and to resolve jointly the problems
Organizational memory	<ul style="list-style-type: none"> -The useful knowledge for the decision making process is available in manuals of rules, data bases or intranet
Communication system	<ul style="list-style-type: none"> -Departments communicate between them what they learnt from errors and developments -Systematic and regular processes are used to collect external information -Meetings, presentations ... are organized to distribute the relevant information
Experimentation	<ul style="list-style-type: none"> -New techniques and method are experimented in specific units before its general implementation
Training	<ul style="list-style-type: none"> ▪ The training activities: <ul style="list-style-type: none"> - have its origin in the employees' requests - have been focused on social knowledge and skills - have been adapted to the specific requirements of your company - are continuous and based on a training program
Communication and leadership skills	<ul style="list-style-type: none"> ▪ The majority of your employees have: <ul style="list-style-type: none"> -communication skills -leadership skills
Informal relationships	<ul style="list-style-type: none"> -The majority of your employees participate in formal and/or informal social activities
Learning from customers	<ul style="list-style-type: none"> -You frequently have meetings with customers -You frequently collaborate with customers in the product and service improvements -There exists activities (dinners, conferences,traveling) where your employees participate -You frequently participate in the activity sector fairs

* Respondents were asked to rate on a 7 point Likert scale the degree of agreement with each statement where 1 is "total disagreement" and 7 is "total agreement".

Table 4

Descriptive statistics and reliabilities of learning culture indexes

Indexes	n	Minimum	Maximum	Mean	SD	Cronbach's alpha
Individual learning culture	151	56.00	112.00	86.60	11.03	0.7218
Learning culture at the organizational level	150	39.00	157.00	96.60	31.49	0.8686

Organizational performance

Two of the utilized organizational performance measurements in this research are based on the CEOs' opinions about which are the key factors to success in their sectors. To study this, intellectual capital items of Intelect model (Bueno, 1998) were included in an electronic

questionnaire which was distributed to CEOs. Results showed “customers’ satisfaction” and “employees’ satisfaction” as the key factors.

The “percentage of permanent customers over the overall customers” was used to measure “customers’ satisfaction”. The levels of presence of “absenteeism”, “employee turnover”, “manpower productivity”, “stress”, “identification with the organization values and objectives” and “commitment” were introduced to value “employees’ satisfaction” (using a 7 point Likert scale). We had the employees’ satisfaction index for each company as the sum of the values given to these items.

Objectives achievement was also utilized as another indicator of organizational performance. A weighted index was developed using eight objectives –cash flow, costs, market share, quality, introduction of new technology, employees’ satisfaction, customers’ satisfaction, and organizational reputation-. Using a 7 point Likert scale, for each objective, the CEO had to indicate its “importance” and its “level of achievement”. We had the index for each company as the sum of the products of these two questions for each objective.

Control and moderator variables

Company age, its size and perceived environmental uncertainty were included as control variables for both types of hypotheses (“a” and “b”). When studying Information Technology activity sector, the sub-sector was also introduced as a control variable.

It was also analyzed if the variable “sub-sector” can moderate the relationship between learning culture and organizational performance in small businesses.

4.3 Statistical analysis

Hierarchical regression analysis was used to examine the relationship between learning culture and organizational performance (hypotheses types “a”). In the first model, each dependent variable was regressed only on the control variables. In the second model, learning culture indexes –individual learning culture and learning culture at the organizational level- were added to the equation. Tests were completed to see if the assumptions for the regression analyses were met.

To analyze if the “activity sector” variable could moderate the relationship between learning culture and organizational performance (hypotheses types “b”), firstly, k-means cluster and was utilized as it has been explained before. Results showed the existence of two significantly different sub-sectors –Software and Hardware- within Information Technology activity sector (see table 1). Secondly, hierarchical regression analysis was applied for each activity sector.

5. RESULTS

Tables 5, 6 and 7 include the descriptive statistics and correlations of Information Technology activity sector, Software activity sub-sector and Hardware activity sub-sector, respectively.

Table 5
Descriptive statistics and correlations (Information Technology activity sector)

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Age	7.769	6.128									
2. Size	11.639	27.605	0.154*								
3. Environmental uncertainty	3.799	1.426	0.031	-0.004							
4. Subsector			-0.026	0.165**	-0.055						
5. Individual learning culture	86.573	11.136	-0.306***	-0.080	0.171**	-0.011					
6. Learning culture at the organizational level	96.867	31.553	0.036	0.237***	0.069	0.330***	0.186**				
7. % Permanent customers	72.496	23.350	0.083	0.101	-0.022	0.191**	0.148**	0.192**			
8. Employees' satisfaction	4.225	0.593	0.001	0.029	0.172**	-0.097	0.291***	0.120*	0.052		
9. Objectives achievement	34.687	7.083	0.174**	0.071	0.114*	-0.062	0.316***	0.217***	0.217***	0.124*	

Note: n= 136; p<0.1*; p<0.05**; p<0.01***.

Table 6
Descriptive statistics and correlations (Software activity sub-sector)

	Mean	SD	1	2	3	4	5	6	7	8
1. Age	7.593	6.582								
2. Size	16.750	39.678	0.203							
3. Environmental uncertainty	3.711	1.342	-0.040	0.008						
4. Individual learning culture	86.433	11.636	-0.392***	-0.067	0.129					
5. Learning culture at the organizational level	108.533	25.549	0.187	0.206	-0.037	0.127				
6. % Permanent customers	77.500	19.078	0.011	0.056	-0.105	0.039	0.103			
7. Employees' satisfaction	4.161	0.581	-0.108	0.071	0.168	0.380***	0.024	-0.061		
8. Objectives achievement	34.198	7.919	0.088	0.088	-0.041	0.340***	0.212	0.159	0.093	

Note: n= 60; p<0.1*; p<0.05**; p<0.01***.

Table 7
Descriptive statistics and correlations (Hardware activity sub-sector)

	Mean	SD	1	2	3	4	5	6	7	8
1. Age	7.908	5.786								
2. Size	7.605	9.788	0.114							
3. Environmental uncertainty	3.868	1.494	0.085	0.002						
4. Individual learning culture	86.684	10.803	-0.225**	-0.180	0.203*					
5. Learning culture at the organizational level	87.658	32.920	-0.50	0.379***	0.163	0.254**				
6. % Permanent customers	68.546	25.677	0.145	0.190*	0.037	0.229**	0.156			
7. Employees' satisfaction	4.276	0.603	0.090	0.009	0.168	0.219**	0.243**	0.148		
8. Objectives achievement	35.074	6.373	0.267**	0.109	0.247**	0.293***	0.407***	0.300***	0.146	

Note: n= 76; p<0.1*; p<0.05**; p<0.01***.

The results obtained when testing H_{1a} and H_{1b} are reported in table 8. Data from Information Technology activity sector has been used to test H_{1a} . Model 1 examines the relationship between customers' satisfaction and the four control variables. Only the sub-sector has a significant relationship with customers' satisfaction. Model 2 includes the four control variables, along with the learning culture indexes. Model 2 represents significant explanatory improvements over model 1. In model 2, individual learning culture has a significant positive effect on customers' satisfaction. In contrast, culture at the organizational level does not have a significant relationship with this indicator of performance. These results provide partially support for H_{1a} .

Table 8
Summary of hierarchical regression analysis for learning culture predicting customers' satisfaction

	Information Technology		Software		Hardware	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Control variables</i>						
Age	0.079	0.135	-0.001	-0.001	0.123	0.196*
Size	0.059	0.048	0.042	0.042	0.176	0.223*
Environmental uncertainty	-0.014	0.155*	-0.108	-0.108	0.026	-0.047
Sub-sector	0.183**	-0.056				
<i>Variables</i>						
Individual learning culture		0.187**		0.045		0.320**
Culture at the organizational level		0.94		0.085		0.007
F	1.642	2.192**	0.269	0.267	1.323	2.345**
R²	0.048	0.093	0.014	0.024	0.052	0.143
DR²		0.045**		0.010		0.091**

Note: $p < 0.1^*$; $p < 0.05^{**}$; $p < 0.01^{***}$. ΔR^2 is the incremental variance explained between each model.

To test H_{1b} data from Software and Hardware sub-sectors have been utilized. This analysis finds support for the hypothesized moderator effect of the activity sector on the relationship between learning culture and customers' satisfaction. Model 2 supplies significant explanatory improvement over model 1 when analyzing Hardware sub-sector but no with Software sub-sector. Results show that individual learning culture has a significant and positive effect on the customers' satisfaction of Hardware small businesses. H_{1b} is confirmed by these results.

Table 9
Summary of hierarchical regression analysis for learning culture predicting employees' satisfaction

	Information Technology		Software		Hardware	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Control variables</i>						
Age	-0.014	0.070	-0.121	0.040	0.076	0.137
Size	0.048	0.040	0.094	0.098	0.000	-0.059
Environmental uncertainty	0.168*	-0.121	0.163	0.117	0.162	0.088
Sub-sector	-0.096	0.110				
<i>Variables</i>						
Individual learning culture		0.279***		0.393***		0.167
Culture at the organizational level		0.088		-0.049		0.216
F	1.350	3.033***	0.923	2.221*	0.847	1.832
R²	0.400	0.124	0.047	0.171	0.034	0.116
DR²		0.084***		0.123**		0.082**

Note: $p < 0.1^*$; $p < 0.05^{**}$; $p < 0.01^{***}$. ΔR^2 is the incremental variance explained between each model.

Table 9 shows the results obtained when testing H_{2a} and H_{2b} . Using Information Technology activity sector, H_{2a} is partially supported. Although the incremental variance explained between model 1 and model 2 is significant, only individual learning culture shows a significant influence on employees' satisfaction. When analyzing splitting Software and Hardware sub-sectors, this analysis finds support for the hypothesized moderator effect of the activity sector on the relationship between learning culture and employees' satisfaction (H_{2b}). In both sub-sectors, culture at the organizational level does not present a significant effect on employees' satisfaction. Individual learning culture has a significant –positive– influence only for Software small businesses.

Finally, when testing hypothesis H_{3a} , which posits a positive relationship between learning culture and objectives achievement, individual learning culture and the culture at the organizational level have been found to be positively related to objectives achievement (model 2 for Information Technology activity sector in table 10). Therefore, this analysis finds strong support for H_{3a} . H_{3b} is also sustained with the results from the analyses of Software and Hardware sub-sectors. Individual learning culture has a significant positive influence on objectives achievement in both sub-sectors. Nevertheless, culture at the organizational level effects objectives achievement of Hardware small businesses, but it does not affect the Software ones.

Table 10
Summary of hierarchical regression analysis for learning culture predicting objectives achievement

	Information Technology		Software		Hardware	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Control variables</i>						
Age	0.160*	0.265***	0.071	0.223	0.238**	0.334***
Size	0.057	0.024	0.074	0.051	0.081	-0.016
Environmental uncertainty	0.106	-0.132	-0.039	-0.084	0.226**	0.110
Sub-sector	-0.061	0.022				
<i>Variables</i>						
Individual learning culture		0.350***		0.429***		0.254**
Culture at the organizational level		0.238***		0.102		0.347***
F	1.637	6.589***	0.272	2.620**	3.532**	6.910***
R²	0.048	0.235	0.014	0.195	0.128	0.330
ΔR²		0.187***		0.181***		0.202***

Note: $p < 0.1$ *; $p < 0.05$ **; $p < 0.01$ ***. ΔR^2 is the incremental variance explained between each model.

The achieved results after testing our hypotheses are summarized in table 11.

Table 11
Support to hypotheses

	Software		Hardware		Information Technology		Support to hypotheses	
	I	O	I	O	I	O	Types "a"	Types "b"
H_1 Customers' satisfaction			+		+		Partially	Yes
H_2 Employees' satisfaction	+				+		Partially	Yes
H_3 Objectives achievement	+		+	+	+	+	Yes	Yes

Note: "I" means "individual learning culture" and "O" means "learning culture at the organizational level".

6. DISCUSSION AND CONCLUSIONS

The purpose of this study was to provide empirical evidence of the relationship between the existence of an organizational culture that encourages learning and organizational performance in small businesses. Some theoretical and practical implications can be drawn from the obtained results.

6.1 Theoretical implications

When testing hypotheses types “a”, individual learning culture has shown a larger effect on organizational performance than learning culture at the organizational level. This result differs from the one achieved by Bontis et al. (2002, p. 459) who found that “organizational level learning is more closely related than either individual or group level learning to organizational performance”. According to their opinion, “companies may be over-investing in the development of individual competencies and capabilities and under-investing in mechanisms to facilitate the flow of learning between levels”. From our point of view, the differences between the two researches are due to their target populations. This study analyses learning in small businesses while mainly big companies are included in Bontis et al. (2002). Small business invest primarily in creating an individual learning culture being more complicated for them to focus on more complex practices like communication systems, experimentation or teamwork. On other hand, in big businesses learning at the organizational level required to be more formalized and planned by management due to its size. In small businesses learning culture at this level can exist in a more informal way.

H_{3a} has been the hypothesis with greater support. Organizational performance is measured using the CEOs’ perception of the level of objectives achievement. According to Dess and Robinson (1984) perceived measures of performance can be a reasonable substitute for objectives measures of performance. For small businesses, our proposal is to use the main reasons of success or failure when utilizing perceived measures of performance. Research³ has showed that the main causes of success for this kind of organization are: improvement of their products or services quality; modernization of their obsolete technology; customers’ satisfaction; employees’ satisfaction; reputation; cooperation with other small businesses and access to public funds. The main reasons of failure are: lack of financial resources, absence of economies of scale and low level of qualification of employees and managers.

It is important to outline that greater influence of learning culture is found when using perceived measures of performance. These results take us to wonder about the difficulty of seeing the effect of learning in more objectives organizational performance measures.

On other hand, in our study the only utilized objective performance measure has been the “percentage of returns over the overall sales” which has been used as an indicator of customers’ satisfaction (H_{1a}). This hypothesis finds support in Hardware sub-sector but not in Software sub-sector. Having these results, made us to wonder if those companies for which the nature of the performed work force them to be more knowledge orientated is more difficult to find a direct effect on objectives performance measures. This is the case of

³The small businesses main reasons of success and failure have been deeply analyzed in: Gaskill *et al.* (1993), Julien (1993), Lumpkin and Dess (1996), Lin (1998), Gadenne (1998) and Ruiz (2001).

Software firms. They found a positive relationship with employees' satisfaction –which is an internal factor- and also with perceived organizational performance measures, but not with the customers' satisfaction. For Hardware small businesses, to be knowledge orientated is not a requirement therefore those companies that use practices that improve learning culture can have a competitive advantages comparing with their peers.

About hypotheses types “b”, it has been found that the relationship between learning culture and organizational performance is moderated by the activity sector. For the three analyzed hypotheses, the achieved results in the Software sub-sector differ from the ones obtained in the Hardware sub-sector. This suggests that, when studying learning in organizations, attention has to be paid to certain contingency factors.

One of the main problems when trying to introduce the activity sector as a contingency factor is to define the boundaries between sectors. Following any of the existing sector classifications –either national ones like the Spanish “Clasificación Nacional de Actividades Económicas (CNAE),” or international like “Standard Industrial classification (SIC)” – you realize that highly disparate firms are considered under the same activity sector. This has been the case in this research. We started analyzing one single sector –Information Technology (divisions 72 and 30 of CNAE-93). Interviewing managers when doing the pre-test we realized that there were two different kinds of firms. The dissimilarities were primarily based on the key success factors and on the internal processes followed in order to be successful. Software firms follow predominantly differentiation strategy and their internal processes are addressed to personalized products and services. Their work is no routine. Team work is required. On the other hand, Hardware firms are mainly focused on cost strategy and on formalizing their internal processes. Their work is standardized. Work sequences are clearly defined. All this took us to conclude that Software firms are more knowledge-intensive and service-oriented than Hardware firms.

Our proposal is that when studying learning in organizations, the nature of the performed work has to be taking into account. Using activity sectors classifications would not be an appropriate alternative due to the difficulty to establish the boundaries between sectors. From our point of view, a solution is to turn to the type of manufacturing system. Three are the types of manufacturing system as defined by Krajewski and Ritzman (2000): (1) flexible flow – a wide range of products or services are produced in small batches; different types of machines or employees with different sets of skills are grouped to handle all products or services requiring a specific function to be performed, and various products or services move from one process to another-; (2) continuous flow –few different products and services are manufactured in big batches; machines and employees are organized according the sequence of operations in the process that material and/or information will follow, high level of automation is required-; (3) and intermediate flow –this system lies halfway between the previous two; several products and services are produced in relatively high volumes; equipments and employees tend to be organized following the process and groups of material and/or information according to the existing routes-.

The utilization of this manufacturing system classification can be highly useful to evaluate learning in organizations since each kind of manufacturing system reflects different levels of requirement of knowledge creation through intuition, interpretation and assimilation of information –individual learning- and of generation of knowledge through socialization, externalization and combination –learning at the organizational level-.

As it has previously been explained, a list of products and services was used to split Information Technology activity sector into two (see table 1). The cluster of firms under the name of Software was focused on “development of customized software and its modifications”, “consulting” and “telecommunications advanced services”. Therefore, Software firms fit into “flexible flow”. Within Hardware cluster are those firms whose sales are focused on “hardware and its maintenance” so they follow “intermediate flow”.

6.2 Practical implications and recommendations for small businesses

This study has been able to incorporate a global assessment of those learning practices small businesses incorporate. A tool to evaluate the presence of learning culture in small business has been developed. This tool is easy to understand and to apply. Its implementation will underline where CEOs should focus on in order to create an internal environment that facilitates the creation and transmission of knowledge in their companies. Actually, one of the deliverables of the project behind this study was an instrument to do benchmarking. A personalized report was sent to every one of the interviewed CEOs. This report contained information for each of the included variables about Information Technology sector and its sub-sector (either Software or Hardware) as well as the value given by his/her organization.

Learning at individual level is having a positive effect on organizational performance in small businesses. The practices included at this level are easier to manage and to take decisions about them. Level of autonomy, rotation or variable reward systems are practices that managers can utilize to increase their learning culture. By increasing individual learning, employees’ satisfaction and customers’ satisfaction can be boosted.

For those small businesses in which the nature of work is knowledge intensive, it is required having a learning culture. Nevertheless, those companies with a manufacturing system not this much knowledge intensive can find an alternative to reach distinctive advantages by implementing and improving their learning culture.

Finally, we would like to warn small businesses CEOs about the difficult of measuring the effect of the learning culture on objectives measures of financial performance. Research has shown more significant relationship with perceived measures of performance.

6.3 Limitations and directions for future research

We are currently doing other research where the kind of manufacturing system, as described above, has being introduced as well as the activity sector. We will be able to analyze if manufacturing system could be a better support for understanding learning in organizations than activity sector.

The results may have been affected by the kind of activity of the sector analyzed and by the average size of the companies (72.2% are micro companies with less than 10 employees). Other sectors and a better distribution between micro-companies, small and medium size companies should be studied.

The study was a cross-sectional study, yet the relationships suggest causal direction. Further longitudinal studies are needed to establish causal direction among the relationships investigated in this research. For example, in a longitudinal study, it may be possible to

observe over time if practices that encourage a learning culture measured at one point are associated with improvements of organizational performance at a later point.

6.4 Conclusions

Our results show that individual learning culture has a larger effect on employees' satisfaction and on customers' satisfaction than learning culture at the organizational level. This last one effects mainly to the level of objectives achievement. In general, our study shows that individual learning has more influence on small business performance than learning culture at the organizational level. On other hand, the activity sector has been found to be a moderator factor on the relationship between learning culture and organizational performance in the small businesses. Manufacturing system has been also proposed as a contingency factor of learning culture in small businesses.

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