THE SOCIAL APPROACH OF KNOWLEDGE MANAGEMENT: THE EFFECT ON THE ORGANIZATIONAL LEARNING CAPACITY. ACADEMIC TRACK

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Isabel Mª Prieto

Universidad de Valladolid
Departamento de Economía
Av. Valle de Esgueva 6,
47011 – Valadolid
España
isabo@eco.uva.es

Elena Revilla

Instituto de Empresa
C / María de Molina 12, 5ª,
28006 – Madrid
España
Elena.Revilla@ie.edu

Abstract

The quest to stay competitive in the global and dynamic economy is increasingly turning organizations towards learning capacity as the main source of competitive advantage. This is due to the widespread recognition of knowledge as the major factor that will determine future success of organizations. Accordingly, knowledge management has become a central topic for academics and practitioners as the most important initiative to enhance learning capacity in organizations. This initiative embraces the government of a set of conditions that are necessary for the processes of generation, accumulation and utilization of knowledge. Specifically, behavioral and interpersonal skills are often cited as essential enablers for successful knowledge management. The present study focuses on the issue of establishing behavioral initiatives of knowledge management for facilitating the development of a learning capacity in organizations. The analysis is accomplished through a validated questionnaire that surveyed 111 Spanish companies. The research findings show the positive relations between behavioral elements of knowledge management and learning capacity in organizations. So, these results validate that by creating and nurturing a trusting, creative and innovative climate, an organization can sustain its competitive advantages.

Keywords

Knowledge management, learning capacity, innovation, trust

Introduction

Today's global competition demands an unprecedented learning response from organizations, requiring them to consider the question of how to develop a learning capacity in such a way that it becomes a source of knowledge and, thus, of sustainable competitiveness (De Geus, 1988; Stata, 1989). In order to accomplish this aim, organizations must develop the ability to perceive and understand the environmental conditions. This entails from organizational members the building, sharing, and integration of a knowledge structure representative of reality. When the environment conditions change, the knowledge structures must be transformed and completed in accordance with the new conditions. In other words, the organizational learning capacity relies on interactions among the organization and the environment, as well as on the learning processes developed by the organizational members with the aim of creating and renewing a representative knowledge structure.

Organizations may not be equally prone to successfully develop and uphold a learning capacity. Therefore, the excellence of the learning capacity requires an effort materialized in what has been called "knowledge management". Nowadays, initiatives for knowledge management are a reality in many organizations, but they are often designed to address those components related to work processes or systems as well as the technological infrastructure to support knowledge capture, transfer and use. However, this paper argues that defining knowledge management only through technological or work structured systems engenders a bias. An equally important side of knowledge management, the social systems, should be taken into account. Specifically, we are referring to those social construction processes, which lead to plausible interpretations that can be enacted by organizational actors. Thus, we suggest that organizations must accomplish knowledge management initiatives by developing technological and structural solutions as working through the social and cultural subsystem. Specially, we try to prove the determining importance of human factors in the success of knowledge management. So, the goal of this paper is to suggest a framework to concrete the social approach of knowledge management arguing that the creation of a social atmosphere that values trust, creativity and innovation are necessary conditions to develop a learning capacity in organizations. Next, we complete an empirical study to show adequate evidence about the anticipated framework.

Undestanding learning capacity

Environmental perceptions are the main driver of learning in organizations (Levitt and March, 1988; Leonard Barton, 1995; Nevis et al., 1995). The suitability of learning capacity depends on the ability to fill the gap between the knowledge stored from the past and the knowledge required to fit changing environmental conditions (Zack, 1999). It implies a change in the organizational expectations, which leads to modifications in behaviors, actions or both. As a result, learning supports the evolution of knowledge within the organization.

From this point of view, we understand that the learning capacity is the ability of an organization to use the actual knowledge structures and keep them constantly renewed. This capacity determines the organizational improvement and, hence, its competitiveness. Learning capacity in organizations is often characterized by two essential dimensions (Dierickx and Cool, 1989; Stewart, 1997; Bontis, 1999; Decarolis and Deeds, 1999; Vera and Crossan, 2000): 1) a static dimension, based on the structures which hold the stocks of knowledge –

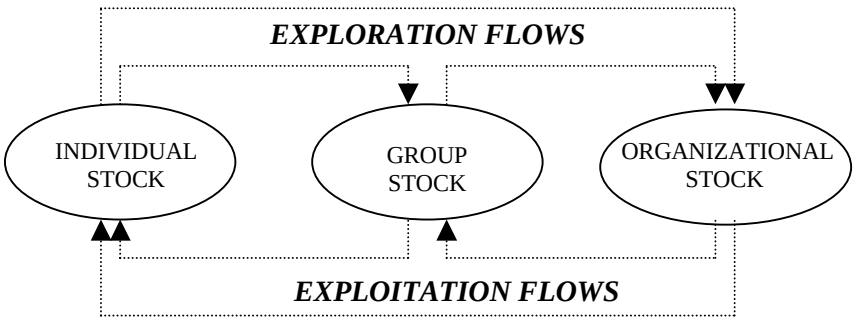
internal or external, tacit or explicit- within the organization; and 2) a dynamic dimension, based on the knowledge flows, representatives of learning processes, that make knowledge stocks evolution possible. Knowledge stocks are the input of numerous knowledge flows as knowledge generation, accumulation, distribution and utilization, which leads to knowledge stocks development. Therefore, the continuous cycle in which knowledge stocks and flows interact and reinforce each other qualifies organizations to create, sustain and generalize effective knowledge.

Knowledge stocks and flows interaction and, thus, learning occurs at several levels in the organization (Levitt and March, 1988; Nonaka and Takeuchi, 1995; Crossan et al., 1999): individual, group and organizational level. Organizations learn through their individual members –individual learning- (Kim, 1993; Hedlund, 1994), but each one of them needs to share and integrate their knowledge. As a result, a collective learning at the group level as well as at the organizational level is then developed (Nonaka and Takeuchi, 1995). Thus, learning in organizations takes place at the individual, group and organizational levels, so that they all store stocks of knowledge which are moved and developed through dynamic knowledge flows between the different levels.

Additionally, learning in organizations can be aimed to 1) generate knowledge variation within organizations and 2) acquire knowledge about knowledge already available within organizations. Therefore, learning processes in organizations involve a tension between creating and assimilating new knowledge –knowledge exploration- and diffusing and using what has been learned from the past –knowledge exploitation- (March, 1991). Knowledge exploration and knowledge exploitation are complementary rather than substitutes. As a result, knowledge flows within organizations should maintain an appropriate balance between both knowledge exploration and exploitation in order to enhance learning capacity in organizations.

Based on Bontis (1999) and Bontis et al. (2002) contributions, Figure 1 integrates previous ideas in a learning framework that combines the different levels of learning and the balance between knowledge exploration and exploitation. This framework shows how knowledge stocks exist in individuals, groups and the organization, and how they are all related by means of knowledge flows for exploration and exploitation, which drive knowledge dynamic evolution.

Figure 1: Learning capacity in organizations



Knowledge management: behavioral initiatives

Once understood the learning capacity in organizations, our next step is to explore how organizations can enable the interaction between knowledge stocks and flows to transform knowledge in a source of value. This is the main objective of knowledge management. Knowledge management initiatives can be summarized in the identification and management of those factors or preconditions that are necessary for the processes of accumulation, utilization, and generation of knowledge. But effective knowledge management practices require having in mind that organizations are a result of the coordination of a variety of work procedures and technical systems linked to the organizational job and, at the same time, that all organizations hold a human component with different behaviors and abilities (Van der Krogt, 1998). For this reason, knowledge management should be based on the alignment of two kinds of approaches (Popper and Lipshitz, 1998, 2000; Choi and Lee, 2001): 1) a "tangible" or structural one, which is integrated by the technical and structural mechanisms designed for the performance of work processes; and 2) the "intangible" or social one, which is integrated by those behavioral elements that can be shared by organizational members. Compatibility between both approaches is the key to satisfy customer needs and to improve the competitive position of the organization.

Keeping in mind that knowledge creation is only possible in the human mind, as a result of personal experiences and sharing processes between individuals, in this research we have only focused on the social or intangible approach of knowledge management. Individuals' intuition, cognitions and reactions lead to organizational interactions with the environment, and outcomes are interpreted by individuals who learn by updating their beliefs about cause-effect relationships (Sinkula et al., 1997). In addition, communication, dialogue and other means to reach shared interpretations are a basis for the creation of new ideas and meanings, therefore, for the creation and updating of knowledge (Senge, 1990). In this sense, individuals should have the ability to self-organize their own knowledge to facilitate solutions to problems and to generate or share knowledge. Accordingly, knowledge management initiatives should be focused on the sense-making behavior of individuals and interactions between them so that they all can learn by doing. Thus, our study focus on the search of those behavioral practices and values related to the interplay between interpretive processes and action taking by individuals as a source of stocks and flows of knowledge.

Development of individuals' behavior on the job is conducted by models progressively assimilated which can be recovered at any moment and which are usually linked to the established social behavior in the organization. Specifically, organization members should be prompted to participate in the organizational processes that enable the development of their competence and capacities in accordance with the organization's requirements. Hence, knowledge management must be a key for the creation of an intervention framework for the production of the individual or social behaviors that are required for learning. Although the improvement of individual attitudes or abilities is strictly personal, it is possible to support a set of conditions or values related to human behaviors and aptitudes that enhance the learning capacity in organizations. Specifically, three essential management tools should be considered: trust, creativity and innovation.

Trust is referred to the commitment to actions and values that induce trust between organizational members. When individuals feel they can trust others and, at the same time, are

worthy of trust, self-esteem bases and safety feelings grow. In this situation, an individual's predisposition to commit themselves to knowledge exchange and to cooperate increases (Mayer, Davis and Shoorman, 1995; Nevis et al., 1995; Nahapiet and Goshal, 1998; Scott, 2000).

Trust is a human attribute that should emerge in collectivity, inducing individuals to believe in their companions' actions or cognitions (Goshal and Barlett, 1994). Several authors (Duncan and Weiss, 1979; Von Krogh, 1998; Nonaka, 1994; Coopey, 1995; Nonaka et al., 1998; Schäffer and Willauer, 2002) have pointed out that trust is an essential condition for learning capacity. In fact, trust is a non-substitutable dimension to create an individual sense of freedom, which is essential to express new ideas, exchange knowledge or even to challenge well-established practices. Individuals need trust to commit themselves to something more than their self-complacence (Handy, 1995). Trust is the main coordinating mechanism to support coherence in the community form. Likewise, their effects also influence managers to encourage a collective effort aimed to share errors (Nevis et al., 1995).

However, the effects of trust on the learning capacity do not emerge unless trust is a shared feeling. When we talk of trust, we are referring to *mutual trust* in personal relations, which depends on the personal motivation to trust. This is the reason why only those organizations that are able to make trust a contextual attribute will address organizational members to collaborate and take initiatives. In this sense, McAllister (1995) and Goshal and Barlett (1994, 1997) suggest that trust management implies the development of conditions such as organizational processes transparency, equity and integrity feelings, the promotion of shared values or the increase in personal and organizational competences. Likewise, conventional managers should turn into trust managers who set an example, since trust generates trust and, at the same time, it promotes cooperation.

Thus, learning capacity development in organizations is enabled by the creation of a climate in which trust management is a precondition to coordinate knowledge stocks accumulation, to share knowledge and to motivate knowledge flows for exploration and exploitation (Goshal and Bartlett, 1994, 1997; Handy, 1995).

Creativity involves the production of novel and original ideas or realities, potentially useful in any organizational domain (Amabile et al., 1996; Amabile, 1997; Woodman et al., 1993; Shalley et al., 2000).

Creativity is a starting point for the organization to fit environmental events. It is a necessary but not sufficient condition for innovation (Kanter, 1989; Amabile, 1997) since innovation is the successful implementation of creative ideas within an organization. The ideas must be appropriate to the presented problems or opportunities, so that problem solving will lead to learning development (Muñoz Seca y Riverola, 1997). Thus, creativity embraces a set of abilities, human skills and motivations directly related to learning capacity. Accordingly, organizations should lead themselves towards the generation, cautious consideration and expansion of new ideas (Amabile, 1997).

Therefore, the enhancement of learning capacity involves managers to search for creative workers and to manage the conditions to support a work atmosphere in which creative thinking is reinforced (Woodman et al., 1993; Oldham and Cummings, 1996; Cummings and Oldham, 1997). Creativity management includes the inducement of a *creative context*

(Amabile et al., 1996; Woodman et al, 1993; Oldham and Cummings, 1996; Shalley et al., 2000) in which behaviors, values and contextual factors stimulate individual, group or organizational creativity (Nonaka, 1994). Amabile et al. (1996) points out that, even when there is no consensus, intrinsic motivators are the most critical enablers of creative behaviors. Specifically, these intrinsic motivators include stimulants such as organizational encouragement of creativity, supervisory encouragement (Oldham and Cummings, 1996; Shalley et al., 2000), sufficient resources (Cohen and Levinthal, 1990; Kanter, 1989), positive challenge in the work (Amabile, 1997, 1998; Muñoz Seca and Riverola, 1997; Ulrich, 1998; Shalley et al., 2000), freedom and autonomy (Nonaka and Takeuchi, 1995; Nonaka et al., 1998; Shalley et al, 2000; Andriopoulus, 2001) and the support of effective work equipments made of diversely skilled individuals (Kanter, 1989; Woodman et al., 1993; Kogut and Zander, 1996; Leonard and Swaps, 1999). Creativity management also includes the absence of several elements that can undermine creativity such as political problems, an excess of formal structures and procedures, destructive criticism and competition within the organization (Amabile, 1997).

Upon this base, we can consider that creativity management inspires organizational members to encourage knowledge flows development and knowledge stocks enlargement in order to take advantage of new challenges and opportunities.

Innovation means the support and execution of creative programs or ideas, which leads to problem generation and resolution, and induces change in organizations. Since innovation is a process linked to change, innovation is also a process linked to learning in organizations (Muñoz Seca y Riverola, 1997). If innovation brings any new idea into use in organizations, it represents an active enabler of the learning capacity that organizations should manage. Likewise it is important to consider that as well as innovations may differ depending on problems type and complexity, the innovation's effect on the learning capacity also varies (Muñoz Seca y Riverola, 1997; Zahra et al., 1999).

In practice, organizational strategy must confer innovation's direction and found its management paths. As well as creativity, innovation may require a specific context that encourages appropriate attitudes and behavior towards innovation. Openness, entrepreneurial convictions, reward or recognition for innovation, fair evaluation of work, active communications or interfaces between the different organizational areas are specially useful to encourage an atmosphere in which innovation and, hence, learning will probably occur (Hamel y Prahalad, 1991; Goshal y Barlett, 1997).

One more time, organizational managers must begin to think about their role as an essential influence to support innovative behavior in organizations. Thus, managers should be the first innovators and encourage organizational members to try out new ways for working and doing things. The aim is not to command them but to convince them for innovation, since innovation promotes knowledge evolution as a channel to efficiently internalize organizational changes.

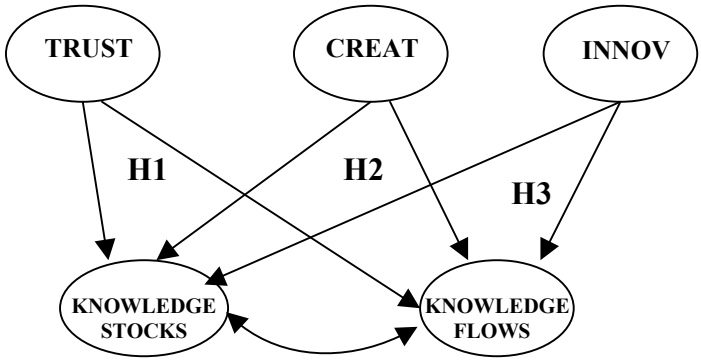
The above explanations imply that when organizations manage and promote innovation as a base to discover and induce potential changes, learning capacity is enhanced through knowledge creation and utilization. In this situation, the opportunities to update knowledge stocks through original combinations of knowledge are activated.

Hypotheses

We propose that organizations that proactively address all three behavioral elements of knowledge management will have the greatest opportunity to learn frequently and effectively, and therefore, develop a learning capacity. Figure 2 details the relationships of the behavioral elements discussed above and the organizational learning capacity through their influence on knowledge stocks and flows. Accordingly, we propose three hypotheses as follows:

Hypotheses 1: Trust is a positive condition for the development of a learning capacity in organizations, influencing the accumulation of knowledge stocks, as well as the evolution of knowledge flows.
Hypotheses 2: Creativity is a positive condition for the development of a learning capacity in organizations, influencing the accumulation of knowledge stocks, as well as the evolution of knowledge flows.
Hypotheses 3: Innovation is a positive condition for the development of a learning capacity in organizations, influencing the accumulation of knowledge stocks, as well as the evolution of knowledge flows.

Figure 2: Theoretical model for the behavioral variables management



Empirical research

Once presented the main behavioral elements of knowledge management, our next step is to test the positive relationship between each one of the proposed management elements and the stocks and flows of knowledge. We jointly test our hypotheses using a Structural Equation Model.

5.1. Data Collection, Method of Analysis and Modeling of Theoretical Concepts

The data has been collected through written questionnaires from a total of 111 Spanish companies, which are the point of departure of our empirical analysis about these preconditions' direct influence on learning capacity. Previously, we have assigned the written questionnaire to a random sample of 1064 Spanish companies of small and medium size –no more than 2500 employees- belonging to industrial and services sectors. So, 10,52% of the companies contacted have participated in the study.

Data analysis has been conducted by Structural Equation Modeling (SEM), which is considered a valid method to explain all paths of inter-related dependence relationships

between a set of unobserved constructs, each measured by one or more manifest (observed) indicators. To develop a SEM model, the linkages (defined causal relationships) between latent constructs and their measurable indicators must be first specified by developing the structural model. Then, it is developed a measurement model to make operational latent constructs via the measurement variables, describing the way in which they are represented by manifest indicators.

We model learning capacity in organizations as a multidimensional latent construct in which knowledge stocks and flows are considered as representative dimensions. For this reason, it has been necessary to introduce a second-order measurement model in which knowledge stocks are valuated on the base of individual knowledge, group knowledge, and organizational knowledge; and knowledge flows are assessed attending to both knowledge exploration and exploitation. So, knowledge stocks and flows are the first order factors for the measurement of the learning capacity, which is the second order factor. Knowledge management tools have been modeled as one-dimensional latent constructs with multiple-indicator variables, which enhance confidence about the accuracy and consistency of the assessment. See the Appendix for the specific items used in this study (once filtered by the proper exploratory factorial analysis). Most of the items follow 5-point Likert-type scales, and those referred to learning capacity are based on Bontis (1999) previous work. Because we are introducing new measures, we examine content, convergent and discriminant validity, and internal consistency prior to testing our substantive hypothesis. LISREL 8, maximum likelihood program, has been used to test the model we have postulated, which includes the structural linear equations to link constructs and their measurement models.

5.2. Measurement Models Estimation

Tables 1, 2, and 3 illustrate the final measurement models for the different groups of constructs. They show, for all the measures employed in each construct, the estimated factor loadings (λij) and t-values, the error variances, the total coefficients of determination (R^2), the composite reliabilities (ρ_c) and, finally, several goodness of fit indices for each model. We have fixed the latent variables variances to 1 to achieve identification. Convergent validity – the extent to which different attempts to measure the same concept agree- can be judged by looking at the significance of the factor loadings. All the estimated loadings (λij) are positive -range from 0.53 to 0.90- and significantly related to its underlying factor (t-values greater than 1.96) in support of convergent validity. Likewise, the inter-constructs correlation parameters showed that discriminant validity –the degree to which a construct differs from others- is achieved among all constructs (not reported in tables). In relation to the quality of the measurement model, the constructs display satisfactory levels of reliability as indicated by the total coefficients of determination (R^2) and the composite reliabilities (ρ_c) –values range from 0.68 to 0.9-. In assessing the overall fit, we have reported several indices: Chi-Square Statistic (χ^2), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root-Mean Square Residual (RMR) and Comparative Fit Index (CFI). Based on these indicators, the fit of the measurement models is not problematic. So, these observations indicate acceptable measurement models.

Table 1: Adjusted measurement model for knowledge stocks

Latent variable	Latent variable	Lambda coefficients		Measurement errors variance	R^2	Composite reliability (ρ_c)	Goodness of fit
		λ_i	t				
Individual knowledge	V1	0.671	7.124	0.550	0.450	0.778	χ^2= 35.376 (P= 0.312) GFI = 0.940 AGFI = 0.896 RMR = 0.0510 CFI = 0.990
	V2	0.822	9.022	0.324	0.676		
	V3	0.707	7.579	0.500	0.500		
Group knowledge	V6	0.616	6.664	0.621	0.379	0.788	
	V7	0.826	9.818	0.318	0.682		
	V8	0.711	8.015	0.494	0.506		
	V9	0.614	6.648	0.623	0.377		
Organization knowledge	V11	0.532	5.346	0.717	0.283	0.714	
	V13	0.745	7.828	0.444	0.556		
	V15	0.586	5.991	0.656	0.344		

Table 2: Adjusted measurement model for knowledge flows

Latent variable	Latent variable	Lambda coefficients		Measurement errors variance	R^2	Composite reliability (ρ_c)	Goodness of fit
		λ_i	t				
Exploration flows	V16	0.662	7.060	0.562	0.438	0.782	χ^2= 21.391 (P= 0.316) GFI = 0.952 AGFI = 0.909 RMR = 0.0472 CFI = 0.990
	V19	0.753	8.321	0.434	0.566		
	V20	0.798	8.976	0.363	0.637		
Exploitation flows	V21	0.607	6.199	0.631	0.369	0.720	
	V22	0.641	6.613	0.590	0.410		
	V23	0.549	5.504	0.698	0.302		
	V24	0.584	5.917	0.659	0.341		
	V25	0.530	5.278	0.719	0.281		

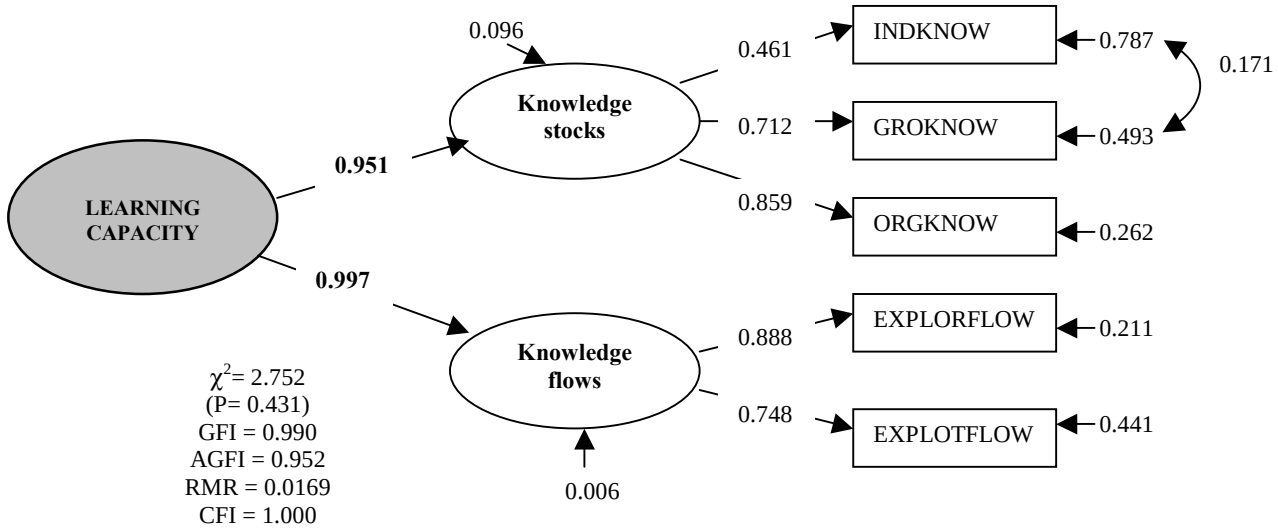
Table 3: Adjusted measurement model for behavioral management tools

Latent variable	Latent variable	Lambda coefficients		Measurement errors variance	R^2	Composite reliability (ρ_c)	Goodness of fit
		λ_i	t				
Trust	V26	0.803	9.643	0.355	0.645	0.874	χ^2= 15.417 (P= 0.565) GFI = 0.965 AGFI = 0.926 RMR = 0.0313 CFI = 1.000
	V27	0.905	11.584	0.181	0.819		
	V28	0.733	8.479	0.462	0.538		
	V30	0.737	8.535	0.457	0.543		
Creativity	V32	0.785	8.272	0.384	0.616	0.756	
	V33	0.775	8.162	0.400	0.600		
Innovation	V35	0.746	6.689	0.444	0.556	0.778	
	V36	0.745	6.686	0.444	0.556		

As we know, learning capacity is a multidimensional construct, which has been represented with a second-order confirmatory factor analysis (for its estimation, we have transformed the indicators of each one of the learning capacity constructs in five single factors by applying principal components factors analysis). The findings (Figure 3) show that this model fits well (χ^2= 2.752, p= 0.431). On balance, this analysis reveals that learning capacity is a second order construct and evidences that both knowledge stocks and flows are critical dimensions of the organizational capacity to learn. However, we can see that group and organizational stocks of knowledge have a better significance than individual stocks of knowledge. This is not surprising if we consider that individual knowledge effectiveness is conditioned to the necessary presence of individuals in an organization, while group and organizational stocks of

knowledge remain in the organization with independence of their individual members. Likewise, both exploration and exploitation flows have a similar significance, which is due to the mutual support and reinforcement between them.

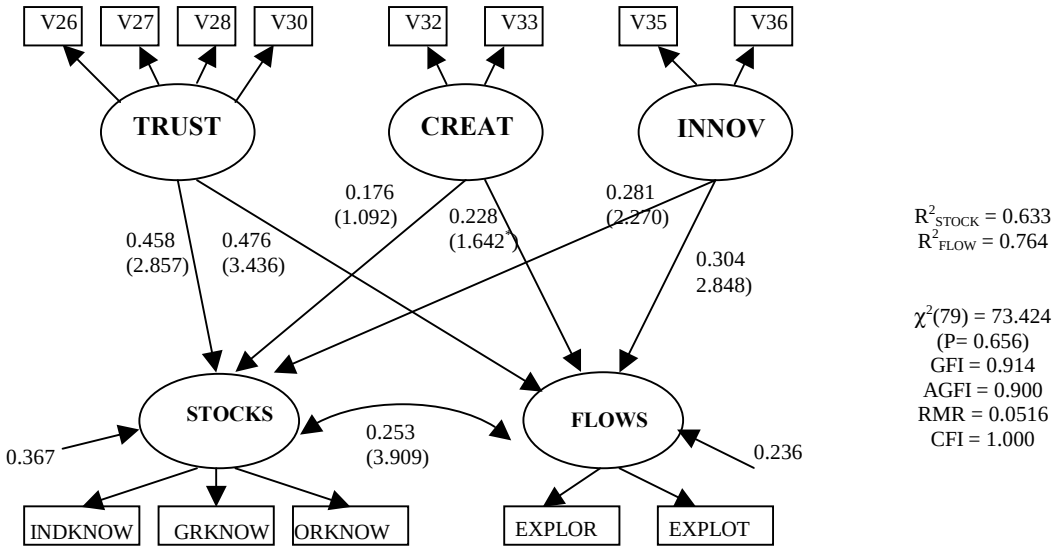
Figure 3: Second-order confirmatory model for learning capacity



5.3. Structural model estimation: Test of Hypothesis

This model estimation (Figure 4) supports the theorized relationships in direction and magnitude, just as the parameters loadings (path coefficients) and their associated t-values (in parenthesis) show. The only difference is that the relationship between CREA and STOCK is not significant (t-value is smaller than 1.96).

Figure 4: Structural model estimation



(*) Significant at a 92% confidence level.

The χ^2 of 73.424 (p = 0.656) is significant. Again, fit indices GFI = 0.914, AGFI = 0.900, RMR = 0.0516 and CFI = 1 provide a good fit for the estimated model. In this model, the R^2 is larger for knowledge flows than for knowledge stocks. This indicates a greater significant relationship between behavioral tools and knowledge flows. This is logical if we consider that both knowledge exploration and exploitation imply the retrieval and reorganization of prior knowledge to recognize the value of new opportunities and ideas, assimilate them, and apply them to create new knowledge and capabilities. Those organizations that promote a creative and innovative context, in which trust is inspired for the development and application of new initiatives and for the expansion of interactive knowledge sharing, are promoting knowledge evolution.

Figure 4 suggests that the constructs are adequately related in the theoretically predicted manner. Trust seems to be the most influential enabler of learning capacity in organization (H1). However, we find that trust signification is a bit better for knowledge flows enhancement than for knowledge stocks. So, trust management in organizations encourages organizational members to cooperate and collaborate with others, share knowledge, commit themselves to the organization, disclose their initiatives and mistakes and, in short, to make things happen. All this suggests that managers must address those values and norms that engender trustworthy behaviors and ensure trust to reside in the quality of the personal relations in the organization. In this way, collective trust may become a potent enabler of the capacity to expand knowledge exploration and knowledge exploitation flows and, hence, knowledge stocks storage by individuals, groups, and the organization.

In relation to creativity paths (H2), we observe that it is a positive enabler of the learning capacity in organizations through the development of knowledge flows. This is logical if we bear in mind that creativity is an attribute mainly related to knowledge evolution and, specially, to knowledge generation. According to this, we expect that organizations which pay attention to employees contributions of novel and useful ideas, products and procedures to face up new and unusual situations are stimulating innovation possibilities. To take advantage of this potential, managers must, first, to place employees with high creative potential, and second, to address a creative context in which original ideas emerge, interact, and are plausible of execution.

Finally, the link between innovation and the learning capacity (H3) is proved by its positive and statistically significant link with both knowledge stocks and flows. Just as Figure 4 shows, the relationship between innovation and knowledge flows is better than the relationship between innovation and knowledge stocks. These results suggest that innovation itself can be considered as a broad process of learning that enables the implementation of new ideas to products, processes or both. Therefore, innovation management assures knowledge generation by means of knowledge application to problem solving. This is to say innovation drives past knowledge use to future knowledge. So, we expect those organizations that embrace an innovative climate, which promotes change and innovation to be capable of driving knowledge flows and knowledge stocks evolution, and, hence, a better fit to market requirements.

Conclusions and implications for management

In this paper, we expand a social framework for knowledge management by developing critical links between the different behavioral elements of management and learning capacity in organizations. Our results suggest an important role for these behavioral tools and practices in achieving learning capacity. We found that improvements in how a company creates, transforms and utilizes knowledge stocks by means of numerous knowledge flows are rarely possible without altering the social atmosphere to support specific behaviors.

Accordingly, our results suggest areas that need special attention from managers as part of an overall knowledge management effort to improve learning capacity. Managers must recognize intuitively how social behaviors are relevant to create, assimilate, diffuse and apply knowledge within the organization and align behaviors of organizational members in support of learning capacity. This diagnosis is a critical first step to develop specific social values, practices and beliefs that shape how organizational members feel, think and behave. So, creating a social climate that value creativity, continuous improvement and sharing of ideas, innovation and developing trust towards the organization are necessary conditions for successful organizational knowledge management. In this sense, we believe managers must be the first in trusting others, be creative and innovative.

Of course, organizations that enact initiatives to promote the proposed behavioral must also include technical systems and informative structured procedures as part of their knowledge management efforts. In this sense, technical systems and structured procedures are enablers to organize data into information, and people are endowed with interpretative capabilities. This means that the technology and structural procedures will be implemented and used effectively only to the degree in which behaviors are aligned to support the objectives of knowledge management. In this way, organizations are more likely to develop the cognition and communication processes which lead to the improvement of the learning capacity.

Our study also contributes to knowledge management and learning assessment by demonstrating that it is possible to measure theoretical relevant constructs that are unobservable. However, even when we have tried to define our constructs as precisely as possible by drawing on relevant literature and to closely link our measures to their theoretical underpinnings, the measurement items used here can realistically be thought of as only proxies for an underlying and latent phenomenon that is neither fully nor easily measurable. Together, inferences in this study are based on cross-sectional data, and we believe that a longitudinal database with strong measures of relevant variables should be developed to assess the issues of path dependency in development a learning capacity through knowledge management efforts. We also think about the assessment of performance effects over time.

In summary, this piece of research has sought to present a social perspective of knowledge management and its effects on learning capacity, in terms of stocks and flows of knowledge. Our findings support the model, even when we can find reasonably suggestions and when it is difficult to model initiatives of knowledge management in organizations. Therefore, through theoretical analysis and empirical testing, this paper supports that firms must embrace a disposition for successful knowledge management through the enhancement of social and behavioral capabilities to foster learning.

Appendix: Construct Definition and Sample Survey Items

Section		Variable	Item	Description
LEARNING CAPACITY IN ORGANIZATION		**LEARNING CAPACITY IN THE ORGANIZATION**		
	Knowledge stocks	Individual-level knowledge	V1	Individuals knowledge and work qualification
			V2	Individuals competence for work performance
			V3	Individuals awareness of critical issues that affect their work
			V4	Individuals confidence on their personal competences
			V5	Individuals sense of responsibility about work
		Group-level knowledge	V6	Groups development of a shared knowledge about their work
			V7	Groups capacity to make decisions concerning their work
			V8	Groups capacity for effective conflict resolution
			V9	Groups coordination and organization of work
			V10	Groups ability to share successes and failures
		Organizational-level knowledge	V11	Organization creates a strategy that positions well its future
			V12	Organizational structure allows working effectively
			V13	Organizational management methods allow working efficiently
			V14	Organization holds actualized documents, information and databases
			V15	Organization's culture is properly distinctive
	Knowledge flows	Exploration	V16	Individual lessons learnt are actively shared within the group
			V17	Individual opinions and viewpoints are considered within groups
			V18	Individuals put input into the organization's decisions
			V19	Organization adopts recommendations made by groups or individuals
			V20	Organization does not "reinvent the wheel"
		Exploitation	V21	Policies and procedures aid individual work
			V22	Internal training and work training are essential in organization
			V23	Interdisciplinary training, work rotation and special assignations are usual
			V24	Individuals support group decisions
			V25	Past experiences are an influence for organizational future behavior
KNOWLEDGE MANAGEMENT		**BEHAVIORAL MANAGEMENT TOOLS**		
		Trust	V26	An open and respectful climate is encouraged within the organization
			V27	Collaboration behaviors are encouraged within the organization
			V28	Integrity, equity and fairness are noticeable values within the organization
			V29	Employees realize they are assisted in their personal and professional development
			V30	Managers trust on their employee's abilities and competences
		Creativity	V31	Creativity is encouraged within the organization
			V32	Employee's autonomy is respected by work supervision
			V33	Employees are allowed to try to solve the same problems in different ways
			V34	There are adequate resources devoted to work in the organization
		Innovation	V35	The organization is committed with innovation
			V36	Managers are flexible and open to responsive change
			V37	Failures are tolerated within the organization
			V38	The organization is open to change and entrepreneurship

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