ESTUDIOS GERENCIALES

Article

Factors associated with learning management in Mexican micro-entrepreneurs

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ARTICLE INFO

ABSTRACT

The learning capacity of social based Mexican micro-entrepreneurs to generate new knowledge and incorporate it to its products and services is evaluated. The above is done through a confirmatory factor analysis and structural linear equation system, and the presence of static and dynamic dimensions in learning capacity, which are represented by individual stocks and flows of knowledge. The positive relationship between them demonstrates the presence of learning processes that impact positively their economic performance.

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Factores asociados a la gestión del aprendizaje en microempresarios mexicanos

RESUMEN

Se evalúa la capacidad de aprendizaje de los microempresarios mexicanos de base social para generar nuevos conocimientos e incorporarlos a los productos y servicios. Mediante la aplicación de la metodología de Análisis Factorial Confirmatorio y de Ecuaciones Estructurales, se comprueba la presencia de dimensiones estáticas y dinámicas en la capacidad de aprendizaje, representada por stocks de conocimiento individuales y flujos de conocimiento. La relación positiva entre ambas dimensiones demuestra la presencia de procesos de aprendizaje que impactan positivamente su desempeño económico.

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Fatores associados à gestão da aprendizagem microempresários Mexicanos

RESUMO

Avalia-se a capacidade de aprendizagem dos empresários mexicanos de base social para gerar novos conhecimentos e incorporá-los em produtos e serviços. Através da aplicação da metodologia de análise fatorial confirmatória e de equações estruturais, é verificada a presença de dimensões estáticas e dinâmicas na capacidade de aprendizagem, representada por ações de conhecimento individual e fluxos de conhecimento. A relação positiva entre as duas dimensões mostra a presença de processos de aprendizagem que impactam positivamente o seu desempenho económico.

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1. Introduction

The continuous developments in the scientific and technical areas have led to the ascent of knowledge as a decisive factor to explain the success of enterprises. In this new environment, characterized by its dynamism and complexity, the importance of knowledge in organizations does not only lie on its possession but in the skills to transform it and use it (Grant, 1997). These skills are the result of the development of the learning process that takes place within the organization when considered as a critical ability to sustain a good economic performance in the face of the demands of the environment (Prieto, 2003).

In the case of social based microenterprises, which are normally set in an informal environment and are endowed with low financial and institutional resources, learning has played a relevant role, when considered as the means through which these microenterprises transform their subsistence condition to efficiency (Mungaray, 1997). The large number of their economic units, which in almost all the Mexican states constitute 90% of all economic units, and their contribution to employment have been a compelling argument for the implementation of strategies that promote learning processes in the microenterprises sector, specifically from incentives such as assistance and training.

While research confirms the existence of a relationship between learning and economic performance of the micro and small enterprises (Bates, 1990; Black & Lynch, 1996; Mungaray, 1997, 2002; Ramírez, Texis, & Aguilar, 2014; Stefanou & Saxena, 1988; Texis, Mungaray, Ramírez, & Ramírez, 2011), it also raises new questions, particularly if their learning capacities are enough to generate a positive impact in their performance. Thus, the aim of this research is centered in studying the learning capacity of social based microentrepreneurs through the combination of confirmatory factor analysis and structural equations. Through the use of both methods, the objective is to characterize the knowledge structures that shape the learning capacity in this type of businessmen and understand more clearly the relationship between their learning capacity and performance.

The research is organized in four sections. First, different approaches to the construction of learning are reviewed. Afterwards, the methodology employed to measure the learning capacity of microenterprises is detailed, and the data, for the Mexican scenario, is both described and analyzed. Subsequently, the results of the model estimation are displayed and analyzed, and in the final section, the conclusions of the study are presented.

2. Reviewing the discussion on learning in the organization

Although, many points of view are present on how the learning process occurs, a consensus exists that defines it based on two perspectives: social and individual or cognitive (Cohen & Levinthal, 1990; Easterby-Smith, Snell, & Gherardi, 1998). The social perspective considers learning as a social phenomenon and assumes that organizations learn through communities and groups (Brown & Duguid, 1991). This perspective centers in the way that people make sense of their experiences in the organization, highlighting a learning process that emerges from the social interactions at the work place (Prieto, 2003). Meanwhile, the individual perspective considers that the organizations learn through the knowledge of each person that constitute them, since knowledge creation is a individual mechanism which depends on each person's ability to effectively process and interpret internal and external information (Levinthal & March, 1993), and its past learning experiences (Dogson, 1993; Fiol & Lyles, 1985; Marquardt, 1999; Muñoz & Riverola, 1997; Nonaka, 1994; Senge, 1990).

When conceiving an enterprise as a system which its fundamental support is knowledge, its performance constitutes a permanent cycle where information enters to be transformed into new insight through learning, and this becomes an important ability to improve efficiency and the organization's potential to innovate and grow. With this ability, the organization is able to face changes in the environment through stocks of existing knowledge in the different organizational levels, this knowledge flows generated by the interaction between different agents (Gómez, 2003).

The distinction between stocks and flows of knowledge are based upon knowledge being an input and an output of the learning process. The stocks activate the flows and these sustain or rethink the existing stocks. This means that the exchanges of knowledge between the different levels of the organization (Prieto, 2003) are materialized through the reorientation of organizational routines and processes, as well as the search of new standards, technologies, objectives and purposes (Lant & Mezias, 1992). The flow is also considered as a result of knowledge generation process through very different procedures, such as research work, production and implementation of new ideas or interaction guidelines (Wiig, 1997).

According to Fiol and Lyles (1985), the stocks of knowledge are those which are obtained through the learning process at the individual level. These stocks are part of the organization's human capital and symbolize the set of cognitive maps and individual competencies. Consistent with Levitt and March (1988), a warehouse of knowledge (stocks) alludes to a portfolio of tactical or explicit insights, developed in different levels of the organization. The individual stocks are composed of a persons' perspectives or mental images of how the world operates, which act as a filter when absorbing new experiences, which are assimilated and transformed according to past experiences (Senge, 1990). For Becker (1962) and Shultz (1961) the stocks of knowledge are reinforced through training in the workplace, in accordance with the learning style organized by enterprises, formally organized education in institutions and every type of action to acquire information on the inner workings of the economic system. Based on understanding that training in the workplace and education level are complementary, Arrow (1962) discovers that productivity is endogenously stimulated by its employees' learning processes, through constant repetition of their tasks and confronting the same issues in the productive process. Hence, not only the investment in human capital, product of formal training in school or in the enterprise, represent economic returns, but also the informal learning processes within the workplace (Mungaray, 1997).

In the empirical field, the relation between organizational learning and performance of the microenterprises has been a subject addressed from different approaches. Stefanou and Saxena (1988) analyzed the impact of instruction in the employees' decision making process, they found that education and experience could be considered substitutes and played a relevant role in the enterprise's efficiency. Similarly, Bates (1990) found that the number of school years rise the chance of survival or success in self-employment enterprises; Black and Lynch (1996) found that indeed the average educational level has a positive and significant effect on productivity at the establishment level.

In the case of the small Mexican enterprises, Machorro (2008) identifies a series of limitations to implement knowledge management projects and technology, which is corroborated by Maldonado and Martinez (2012) when they found that knowledge management has a strong correlation with the growth of these types of enterprises. In this growth process, Mensinas (2010) has identified three dimensions of learning in small enterprises: in the market (communicational capital), in the organization (human capital) and in technology (innovation and development capital), although Estrada and Dutrénit (2007) emphasize that even though intangible resources favor competitive performance, human capital is the

one that exercises a mayor influence in contrast with the rest of the dimensions.

In the case of microenterprises, Mungaray (2002) analyzes the knowledge diffusion process, starting from the creation of safe spaces for knowledge to flow and strengthens human capital in microenterprises, concluding that between university students and microenterprises a strategic bond is established to learn from one another, improve productive and organizational efficiency and increases the earnings of the assisted microenterprises. Researches by Mungaray, Ramírez, Ramírez, and Texis (2010), Ramírez, Mungaray, Ramírez, and Texis (2010) and Texis et al. (2011) found that a high percentage of microenterprises show learning processes and obtain constant returns of scale, which generated public policy implications in the subject of human capital for the development of the sector (Ramírez et al., 2014).

Both, the identification of the intellectual capital elements and specific indicators to capture the synergic effect of learning management at an organizational level and the evaluation of learning processes that pinpoint knowledge across the different operational levels, have as common factor the recognition of the importance of human capital in the learning process and analyze a set of factors, tools and conditions that facilitate the creation, absorption and diffusion of knowledge within the micro and small enterprises.

3. Methodology

To carry out this research, the database used had data from Mexican microenterprises located in Baja California and registered at the *Centro de Investigación, Asistencia y Docencia a la Micro y Pequeña Empresa* (CIADMYPE) of the Autonomous University of Baja California. From the initial set of data, those records that lacked information of the variables used in this analysis were eliminated, which resulted in a data set of 8474 records of microenterprises. Out of that total, 59% are categorized within the commerce sector, 32% within the service sector and 9% within the manufacturing sector.

The research model considers the learning capacity of an organization in relation to the ability the individuals have to generate new knowledge and incorporate them into their products and services (Nonaka & Takeuchi, 1995). The model is composed of two dimensions that determine the learning capacity: the knowledge stocks and the flow of knowledge. In this case it is assumed that the stocks and flow of knowledge are related and reinforce each other in a continuous cycle, which makes it possible to perfect the learning capacity of the organization and positively impacts its economic performance. In this way, the model considers, not only the factors that favor the existence of learning capacities, but also their contribution to performance. For this research, descriptive and correlational research techniques have been combined. Through descriptive research, the dimensions of the learning capacity of micro-entrepreneurs are assessed, and afterwards, through the correlational perspective, the dependency relationships among factors are analyzed.

The following are considered as variables of stocks of knowledge: experience, education and abilities. Education is an important element to model the learning cycle of an individual (Hamel & Prahalad, 1993). Also, it is recognized that experience is a key factor for and individual's learning, since it determines the proficiency and speed to apply the knowledge in quantity and quality, and also, its level of influence in the learning process. Furthermore, from a professional perspective, the experience acquired in former and current jobs, influence the development in new jobs and in help to lower levels of uncertainty (Fondas & Wiersema, 1997). The model also analyzes, a group of indicators that allow to identify the knowledge that has been implemented in the organization through

Table 1
Operationalization of the variables of the CFA model.

Latent variables	Indicators
Stocks of knowledge	X_1 Labor experience the micro-entrepreneur had before starting the business X_2 Previously acquired abilities by the micro-entrepreneur X_3 Time it took for the micro-entrepreneur to learn the business X_4 Level of education of the micro-entrepreneur
Flows of knowledge	X_5 Implementation of changes in the organization of the business X_6 Changes done to machinery and equipment X_7 Adaptations done to machinery and equipment to facilitate its use X_8 Improvements done to the product since the business was started
Microenterprise performance	X_9 Progress of the microenterprise in regard to number of employees X_{10} Progress of the microenterprise in regard to sales X_{11} Progress of the microenterprise in regard to profit

Source: Own elaboration.

improvements and innovations done to the products and services. The performance of the microenterprise is evaluated in relationship to the behavior of variables such as number of employees, sales and profits.

To examine the dependency relationships between the variables that makeup the theoretical model, structural equations models (SEM) were used. To that effect, the confirmatory factor analysis (CFA) was used to explain the correlation between variables and its associated indicators; in this case, variables related to the stock of knowledge, flows of knowledge and the performance of the microenterprise. Subsequently the structural model was defined, which was aimed to prove the veracity of the proposed relationships in this research's hypothesis.

The CFA model is composed by three latent variables and eleven indicators. The indicators are items of the questionnaire applied to the micro-entrepreneurs in the database (Table 1).

To ascertain the representativeness of the variables to be used in the CFA, a principal component analysis and a varimax rotation were used. These methods allow the definition of groups of highly correlated indicators and evaluate to what extent the set of factors adjust to the representative data (Table 2). The indicators are represented by the letter X, the measurement errors by the letter γ and the factors by the letter ζ. X_1, X_2, X_3 and X_4 measure factor ζ_1 (stocks of knowledge); X_5, X_6, X_7 and X_8 measure factor ζ_2 (flows of knowledge); and X_9, X_{10} and X_{11} measure ζ_3 (microenterprise performance).

Table 2
Mathematical formulation CFA model.

Stocks of knowledge	$X_1 = \lambda_{11}\zeta_1 + \gamma_1$ $X_2 = \lambda_{21}\zeta_1 + \gamma_2$ $X_3 = \lambda_{31}\zeta_1 + \gamma_3$ $X_4 = \lambda_{41}\zeta_1 + \gamma_4$
Flows of knowledge	$X_5 = \lambda_{52}\zeta_2 + \gamma_5$ $X_6 = \lambda_{62}\zeta_2 + \gamma_6$ $X_7 = \lambda_{72}\zeta_2 + \gamma_7$ $X_8 = \lambda_{82}\zeta_2 + \gamma_8$
Microenterprise performance	$X_9 = \lambda_{93}\zeta_3 + \gamma_9$ $X_{10} = \lambda_{103}\zeta_3 + \gamma_{10}$ $X_{11} = \lambda_{113}\zeta_3 + \gamma_{11}$

Source: Own elaboration.

Table 3
Matrix of rotated components – confirmatory factor analysis.

Factors	F_1 Stocks of knowledge		F_2 Flows of knowledge		F_3 Microenterprise performance	
	Variable	Weight	Variable	Weight	Variable	Weight
	X_2	0.712	X_5	0.536	X_{10}	0.937
	X_3	−0.603	X_6	0.791	X_{11}	0.941
	X_4	0.440	X_7	0.773		
			X_8	0.717		
Cumulative percentage of variance	48.41		20.40		37.64	
Kaiser–Meyer–Olkin			0.646			
Bartlett's sphericity test			0.00			

Source: Own elaboration compiled with results of SPSS 15.0 software.

Once confirmed that the measurement scales are reliable and consistent, the dependency relationships between independent and depended latent variables is established through the following structural model.

$$\eta = \beta\eta + \Gamma\xi + z\xi + \zeta \tag{1}$$

where

$\xi = p \times 1$ independent latent variables ζ_1, ζ_2 vector
$\eta = q \times 1$ dependent latent variable vector
$\beta = q \times q$ coefficient matrix (β_{ij}) related to η
$\Gamma = p \times q$ coefficient matrix (γ_{ij}) from ξ to η
$z\xi =$ control variables vector
$\zeta = q \times 1$ vector of associated errors with η.

The assumptions of $E(\zeta') = 0$ and $E(\xi\zeta') = 0$ are establish since the measurement errors are not correlated with the variables. To better adjust this last model, the following control variables were added: sex, number of employees and capital.

To measure the variability of the CFA and structural models, the Goodness of Fit Index (GFI) is used, which takes values between 0 and 1, where 1 specifies perfect adjustment. The adjusted goodness of fit (AGFI), adjusts the index mentioned before to the degrees of freedom with maximum value of 1. To the extent that the model is adjusted, the root mean residual (RMR) tends to cero. As a complementary measurement, the comparative fit index (CFI) is used, which can take any value between 0 and 1 (ideal value) and is independent from the size of the sample. Finally, it is reviewed that the estimated parameters do not reflect correlation coefficients higher than one and standardized factor loading should be within −1, +1.

4. Results

The statistics for the sample selected show that microenterprises operate with one employee and in 68% of the cases the person responsible for the business is a woman with an average age of 37. In terms of education (X_4), 63% of the surveyed finished elementary school, 19% finished middle school and only 17% had a high school or a technical career. The data confirms that 56% of micro-entrepreneurs had previous labor experience before opening their business (X_1), 26% where homemakers, 7% did microenterprise related activities and only 8% where studying. Likewise, the main source of abilities (X_2) where self-learning (55%) and friends and family (23%), with an average learning time (X_3) of 1.54 months.

In relation to the flows of knowledge that are present in the organization (X_5, X_6, X_7 and X_8), the micro-entrepreneurs have developed few improvements on technology and process used in production. In more than 80% of firms, there is not a systematic effort to make significant changes to the organization, machinery, equipment, and the products it offers, although a good deal of observed changes (37%) were to its products (X_8).

In relation with the business' performance in terms of number of workers (X_9), in the period analyzed 87% of micro-entrepreneurs diminished the number of employees needed to conduct the business' operations, 4% operated with the same number of workers and 9% increase the number of employees. In terms of sales (X_{10}), 47% of microenterprises raised them, 40% lowered them and 12% had no changes in terms of sales. The profits (X_{11}) followed a similar path to sales, 43% of microenterprises indicated a favorable trend in profits, 45% indicated that profits diminished, and 12% had no significant changes in terms of profit levels.

The tests of sampling adequacy Kaiser–Mayer–Olkin (>0.50) and Barlett's sphericity test ($p < 0.05$) dome to the correlation matrix in Table 3, show that there is an adequate correlation between the variables, and the statistics goodness of fit were adequate; AGFI = 0.963, GFI = 0.990, RMR = 0.008, CFI = 0.987.

From obtaining the matrices of factor loadings and the interpretation and evaluation of the weights for each variable found in the factor analysis, it was determined that the stocks of knowledge were going to be evaluated through the abilities acquired by the micro-entrepreneur (X_2), learning time (X_3) and education level (X_4). The labor experience variable (X_1) was taken out of the analysis due to the no significance of its weight (<0.4). In relation to the flows of knowledge, changes in the organization of the enterprise (X_5), changes to the machinery and equipment (X_6), adaptations to machinery and equipment (X_7) and improvements to products (X_8) are of great relevance to the analysis. Meanwhile, the results corroborate that is possible to measure the performance of the microenterprise through the behavior of sales (X_{10}) and its profits (X_{11}), excluding the number of employees (X_9) given the no statistical significance of its weight (0.32).

The observations of the goodness of fit indices of the structural model, allow to determine that the model is adequate (Table 4). When the stock of knowledge factor is analyzed individually, the abilities acquired by the micro-entrepreneur (X_2) and the level of education (X_4) preset a positive relation and statistically significant with factor F_1. These results, in Becker's (1962) sense, confirm the importance that education and abilities have in learning. On the other hand, from the negative relationship between the learning time of a micro-entrepreneur (X_3) and the stocks of knowledge is possible to infer that the postponement of learning times decreases the stocks of knowledge in microenterprises. When the coefficient of determination (R^2) is analyzed at each model's factors level, it is possible to identify that the variables, learning time and education level (X_3 and X_4), have low values with respect to factor F_1, which shows that these variables influence little in the behavior of stocks of knowledge. The low but positive R^2 coefficient value (0.257) of the abilities factor (X_2), confirm that its acquisition, by the micro-entrepreneur, through a self-learning process, is an important element of the stocks of knowledge in this kind of organizations. These results are consistent with the research done by Texis and Ramírez (2015), which found that microenterprises are characterized by the development of activities that are

Table 4
Estimation of structural equations.

Estimated model		Goodness of fit
Standardized solution	R-Squared	
$X_2 = v_7 = 0.507 * F_1 + 0.862 E_7$ $\quad\quad\quad (0.021)$	0.257	AGFI = 0.977
$X_3 = v_8 = -0.214 * F_1 + 0.977 E_8$ $\quad\quad\quad (0.043)$	0.046	GFI = 0.986
$X_4 = v_9 = 0.182 * F_1 + 0.983 E_9$ $\quad\quad\quad (0.023)$	0.033	RMR = 0.008
$X_5 = v_{10} = 0.533 * F_2 + 0.846 E_{10}$ $\quad\quad\quad (0.041)$	0.285	CFI = 0.962
$X_6 = v_{11} = 0.770 * F_2 + 0.638 E_{11}$ $\quad\quad\quad (0.036)$	0.593	
$X_7 = v_{12} = 0.711 * F_2 + 0.704 E_{12}$ $\quad\quad\quad (0.032)$	0.505	
$X_8 = v_{13} = 0.570 * F_2 + 0.822 E_{13}$ $\quad\quad\quad (0.036)$	0.325	
$F_2 = F_2 = 0.353 * F_1 + 0.935 D_2$ $\quad\quad\quad (0.020)$	0.125	
$F_6 = 0.071 F_1^* + 0.098 F_2^* + 0.662 F_3^* - 0.018 F_4 + 0.01 F_5^* + 0.736 D_6$ $\quad\quad (0.023) \quad\quad 0.035 \quad\quad (0.041) \quad\quad (0.93) \quad\quad (0.00)$	0.460	

GFI: Goodness of Fit Index; AGFI: Adjusted Goodness of Fit; RMR: Root Mean Residual; CFI: Comparative Fit Index
Source: Own elaboration compiled with results of EQS. F_6: microenterprise performance, F_1: stocks of knowledge, F_2: flows of knowledge, F_3: sex, F_4: number of workers, F_5: capital (probability).

not related to labor experience. However, unlike learning associated with a decreasing average cost, the stocks of knowledge here identified are associated with flows of knowledge that were originated by changes and adaptations done mainly to machinery and equipment.

Even though the coefficients of the variables of F_2 are positive and significant, the highest impact on the variability of knowledge flows came from changes done to machinery and equipment (X_6) and the adaptations done to these kinds of technology to facilitate their use (X_7).

In relation to the structural model, which analyzes the dependency relationships between the stocks and flows of knowledge as measures of the learning capacity, the statistics confirm the dynamism of the learning capacity through a positive relationship between the stocks of knowledge (F_1) and the flows of knowledge (F_2). This hypothesis can be accepted, since the correlation coefficient between both dimensions (0.353) is positive and significant. The interaction effect between the variables allows for the knowledge to progress through the learning of the micro-entrepreneurs, which influences in a positive and significant manner the performance of the enterprises through the stocks (0.07) and flows of knowledge (0.09). This results are consistent with the individualistic perspective of organizational learning, where it is assumed that the organizations learn through its human capital and it is confirmed that the creation of knowledge is an individualistic mechanism that depends on the capacity of each person and their past learning experiences. In consequence, the results of the model confirm the importance of individualistic learning to microenterprises, therefore, the learning capacity of micro-entrepreneurs is the most important factor for the development of their business.

As for the estimation of the parameters that link the independent variables sex and capital with performance of the microenterprise, the statistics confirm a positive and significant relationship. This results are in accordance with the findings of Ramírez et al. (2014), where they emphasize that women are more likely to set a social based microenterprise, highlighting aspects related to acquired abilities through self-learning. Meanwhile, capital displayed an elasticity of 0.01, which is consistent with the results found in studies related to microenterprises, where the elasticities obtained are low in comparison to the rest of the variables analyzed, for example, labor and human capital (Mungaray & Ramírez, 2007). This is because these businesses are characterized by low levels of capital, which are largely obtained financed by personal savings, have liquidity and external financing restrictions, which limits their ability to add more capital.

5. Conclusions

The results of this research show the importance of knowledge for the economic performance of microenterprises through organizational learning. Through the use of factor analysis and the structural linear equations model, it is confirmed that there are two dimensions present in the learning capacity of the persons that work in the microenterprises: the static represented by the stocks of knowledge and dynamic associated with the flows of knowledge. Through the positive association of both factors, learning processes have been identified that stem from the generation of new knowledge incorporated into products and services that have a positive impact on the performance of the enterprise. Thereby the hypothesis that the persons working in a microenterprise have the capacity to generate new knowledge that has a positive impact in the performance of the business.

A relevant aspect of stocks of knowledge of this kind of enterprises is how these are reinforced by the education level of the micro-entrepreneur, and in an even higher way by the abilities developed through self-learning. This has had a positive impact in the flows of knowledge identified in this study, such as the improvements of the products and services offered by the micro-enterprises. This is related to the theory which establishes that in addition to education and experience, self-learning acquired through the daily repetition of productive tasks, *learning by doing*, makes the microenterprise more efficient. In this sense, the findings of this paper are consistent with the approach of learning presented by Arrow (1962) where he highlights the possibility of elevating, in an endogenous way, worker productivity by stimulating learning in the workplace. Likewise, the results are in accordance with Mungaray and Ramírez (2007), where the role of formal learning is emphasized, developed in the productive process, in the accumulated human capital of the microenterprises as a productivity factor.

Regarding the variability of the flows of knowledge, the evidence relates this dynamic part of learning with the modifications done to machinery and equipment and the adaptations done to facilitate their use. This means that only from the dynamic nature of learning capacity, which is manifested as a positive relation between stocks and flows of knowledge, important changes for the organization are generated. In this sense, it is worth to mention the reflection done by Grant (1997) which mentions that the relevance of knowledge within the organizations does not reside exclusively in their possession, but the skills to transform it and use it. Likewise, the results of this research are consistent with the approaches of

Jovanovich and Yaw (1995), who noted that the learning processes not only elevate the efficiency of the human capital, but also constitute a starting point for innovations in production techniques and ways to organize and market products (Young, Joe, & Christopher, 1993).

While it is true that micro-entrepreneurs make a systematic but limited effort to develop knowledge, the results allow to identify a set of practices where knowledge is deposited, shared and transferred in specific contexts. In this regard, Texis et al. (2011) have demonstrated that learning, in microenterprises, has explain its survival odds. Therefore, it seems pertinent to establish business policies and strategies to administrate adequately the existing knowledge in microenterprises. The evidence presented in the study of the micro-entrepreneurial sector by Texis and Ramírez (2015) emphasize the relevance of non-financial business development services, such as technical assistance to reinforce human capital and the generation of learning processes.

Some of the future research fields will be oriented to the analysis of the influence of the elements of knowledge management over each of the elements of its dimensions (stocks and flows) of learning abilities and the measurement of the effects produced in each of them. The analysis can also be expanded to evaluate the impact of the learning ability over non-economic variables, such as customer satisfaction and product quality. Lastly, it would be interesting to use longitudinal data in future researches, since analyzing the ability to learn through time, giving its gradual and accumulative nature, can contribute new elements that favor the design of more precise development strategies for microenterprises.

Conflict of interest

The authors declare no conflict of interest.

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