Exploratory Factorial Model of Knowledge in at a university in central Mexico

Modelo Factorial Exploratorio del Conocimiento en una universidad del centro de México

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Abstract

Organizational development and knowledge management have been appreciated from the relationships between their factors. In this sense, knowledge networks explain learning from a factorial structure, considering the differences between the parties involved. A non-experimental, cross-sectional and exploratory study was carried out with a non-probabilistic selection of 300 students, managers and teachers from a public university in central Mexico. The participation of the sample in the system of professional practices and social service was the inclusion criterion. The results show a factorial asymmetry of one input layer unit for three output layer units, suggesting that there is a significant degree of learning around the knowledge network. However, there are areas of opportunity around the hidden layer, since its units reveal information processing that reduces the uncertainty of the input layer and amplifies the knowledge of the output layer. The implications of the study results for educational policies suggest academic, professional, and labor training oriented by collaborative management.

Keywords: Culture; Institutionality; Leadership; Network; Layer

Resumen

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El desarrollo organizativo y la gestión del conocimiento se han apreciado a partir de las relaciones entre sus factores. En este sentido, las redes de conocimiento explican el aprendizaje desde una estructura factorial, considerando las diferencias entre las partes implicadas. Se realizó un estudio no experimental, transversal y exploratorio con una selección no probabilística de 300 estudiantes, directivos y docentes de una universidad pública del centro de México. La participación de la muestra en el sistema de prácticas profesionales y servicio social fue el criterio de inclusión. Los resultados muestran una asimetría factorial de una unidad de capa de entrada por tres unidades de capa de salida, lo que sugiere que existe un grado importante de aprendizaje en torno a la red de conocimiento. Sin embargo, existen áreas de oportunidad en torno a la capa oculta, ya que sus unidades revelan un procesamiento de la información que reduce la incertidumbre de la capa de entrada y amplifica el conocimiento de la capa de salida. Las implicaciones de los resultados del estudio para las políticas educativas sugieren una formación académica, profesional y laboral orientada por la gestión colaborativa.

INTRODUCTION

Organizational development has dealt with the adaptation of an organization to the labor market (García Lirios, 2022). The diagnosis, strategy, implementation and evaluation aimed at improving the quality of processes and products involves knowledge management. In this sense, organizational development is an area of accreditation and certification that measures, promotes, and establishes the learning of skills and knowledge, as well as attitudes toward a management or administration system.

Organizational development begins with knowledge management in its formative dimensions (Sandoval et al., 2022). The objectives, tasks and goals are managed between the interested parties. One-way communication and motivation limits management and organizational development, but two-way communication reflects training aimed at employing talent.

However, knowledge management is misrepresented by strategic planning (García Lirios, 2022). Therefore, organizational development reflects a communication and

motivation that excludes the needs and expectations of talents. Organizational development distances itself from human development (Janicijevic, 2013). The Human Development Index measures the needs and expectations of talent, but it does not explain the differences between the search for and the job offer, as well as the asymmetries between those who study and work with respect to the opportunities generated by the market and the State (Cruz et al, 2016). Market demands and institutional guidelines determine increasingly complex organizational structures and phases (Omotayo & Adenike, 2013). It is a context in which five years ago 40% of jobs did not exist and in which micro, small and medium-sized enterprises (MIPYMES) generate 90% of jobs, but 30% of them do not survive more than three years (García et al., 2016).

From the perspective of complexity, the unilaterality and verticality of decision-making is complemented by a bidirectional and horizontal knowledge management proposal for entrepreneurship and innovation (Acar y Acar, 2014).

Self-regulation –balance between external demands and internal resources–, dissipation –emergence of internal resources in the face of external demands–, adaptation – optimization of internal resources in the face of external demands–, dynamics – innovation of resources in the face of external demands– and complexity – emergency balance, optimization and innovation– are new scenarios for organization development and knowledge management (Sanchez et al., 2022).

Globalization produces information that determines the structure, objectives and changes in organizations. Their talents are the ones that respond with the optimization of resources based on the demands. The imbalance between the requirements of the market or the State, organizations generate knowledge and processes limited to discourses (Quintero et al., 2016). Collaborative work, an indicator of organizational development and knowledge management, is observed in relationship climates, empathy, commitment and satisfaction.

Precisely around the symbols and meanings that organizational cultures build, languages and codes configure complex systems, since in organizations without debate and consensus, scientific and technological advances are often ignored.

Such dynamism shows other types of systems in which the information is properly processed according to the external demands and the internal resources of the organization, but when those who make decisions in the organizations ignore the contributions of other departments, then the organizational system is simplified (Carreon et al., 2022). .

The theory of complex systems postulates organizational development as the result of a dialectical process in which the interrelationship between self-regulating, adaptive and dynamic systems configures complex organizations (Garcia Lirios, 2021).

Based on the typology and dialectic of organizations, globalization is a context in which structures acquire development value. Consequently, organizations have been able to adjust their resources and innovations to the institutional framework of the State and the rationality of the market (Saansongu y Ngutor, 2012).

In other words, public policies and the principles of cost minimization and profit maximization coexist with the proposed organizational structures and phases.

Precisely, the theory of complex systems explains the meanings that the actors produce and materialize in

opportunities, skills and knowledge through forms of organization and lifestyles that not only increase their human or social capital, but also highlights the importance of relationship climate within companies and institutions (Vázquez et al., 2016).

In the institutional field, the theory of organizational development maintains that there are four dimensions around knowledge management. These are the specification of functions, the intersectoral composition, participatory channels and transparency in management (Hernández y Valencia, 2016).

If the theory of complex systems highlights the emergence of dissipative and adaptive structures, the theory of organizational development shows that such structures are a function of culture and institutional and labor management (Robles et al., 2016).

In this way, the evidence of organizational development is due to the conformation of a management structure based on the values and norms established in the institution or company (Sanchez et al., 2018). It is these norms and values, both autocratic and democratic-participatory, that generate a dynamic

of innovation and change within public and private sector organizations.

Therefore, as the structures dissipate and adapt to external contingencies and innovations of organizations, they need their functions, guidelines and processes, as well as persuasive and motivational channels to generate a climate of empathy, commitment and satisfaction (Mendoza et al., 2016).

On the other hand, when the structures are maintained without emerging or systematic changes, they generate questionable organizational development due to the discretion and slowness of their processes and strategies (Sales et al., 2016).

Organizational development is reflected in knowledge networks in general and neural networks in particular, since this implies a process of permanent formation inherent to changes and innovations in organizations as agreed responses to market demands or State guidelines.

Organizational development studies have shown the impact of business promotion policies on entrepreneurship and innovation as indicators of knowledge and knowledge network management. Carreón et al. (2017) carried out a study with coffee growers in which they established a

direct, positive and significant relationship between the cooperation of knowledge with the management of innovative products focused on the aroma of coffee. In this work, the empathy and commitment of the coffee growers allowed a management of their product focused on the confidence of the microcredit.

However, the science of organizational development has shown that, in the field of occupational health, the management of knowledge networks is determined by individual capabilities rather than by the formation of collaborative groups. García et al. (2017) established a model in which they demonstrated the direct, positive and significant effect of risk perceptions, task climate indicator, on self-care behavior, occupational health indicator, work climate factor.

In this way, organizational development studies have established that individual capabilities are the result of a habitus or set of dispositions in favor of objectives, tasks and goals. Pérez et al. (2017) find factors external to organizations as determinants of the habitus, as is the case of training environments –study groups– and academic networks –collaborative groups–. To the extent that the climate of tasks in the form of spheres and

networks of knowledge intensified, the habitus or favorable disposition increased.

In summary, the science of organizational development has shown that the balance between external demands and internal resources in organizations is determined by entropic factors centered on relationship climate that affect task climate, support climate, and engagement climate. innovation. but also, the science of organizational development has observed the incidence of negentropic factors such as microfinancing, skills and habitus that seek to compensate for the imbalance between demands and resources.

Precisely, the study of knowledge networks, indicated by their degree of neural learning -capacities and habitus-, will allow us to anticipate scenarios of entropy and negentropy that reveal the complexity of organizations in the face of the contingencies of their environment (Garcia et al., 2019). In the specific case of higher education institutions, considered as open systems determined by the imbalance and balance between external demands and internal resources, the study of their knowledge networks and neural learning will allow reorienting the quality of their processes.

Such a diagnosis must be made in teachers, administrators and students when considering their capacities -skills and knowledge- the most important intangible asset of the internal resources of an organization (Coronado et al., 2022). In this sense, it is assumed that the talents and leaders of an organization are bearers of capabilities, but essentially of relationship climates that reverse the imbalances observed in their task climates, innovation climates, and support climates.

The analysis of neural relations (learning knowledge and skills) around organizational development in administrators, teachers and students of a public university in the State of Mexico.

What are the knowledge networks –neural learning indicated by: 1) specification of functions, 2) intersectoral composition, 3) participation channels and 4) management transparency– around organizational development in administrators, teachers and students of a public university? of the State of Mexico?

Since administrators, teachers and students are immersed in an organizational development focused on self-regulation, dissipation, adaptation,

dynamics and complexity, then their knowledge networks (neural learning) will adjust to the intermediate layers with respect to the input and output layers since, in this public higher education institution, the quality of the processes –efficiency– is its main competitive advantage, ignoring efficiency –objectives and goals achievement– and effectiveness – information dissemination. achievement benefits.

In this sense, the relationships between the neural learning indicators: 1) specification of functions, 2) intersectoral composition, 3) participation channels and 4) management transparency, will allow establishing the degree of complexity of the organization in the event of a contingency of external demands and scarcity of internal resources.

In this way, knowledge management focused on production rather than reproduction will be reoriented towards a feasible scenario of promoting neural learning.

Though University public has an organizational development focused on self-regulation, dissipation, adaptation, dynamics and complexity, its knowledge networks (neural learning) differ from the intermediate layers (quality of its processes or efficiency and innovation), the layers of input (undertaking your processes) and output layers (objective, task and goal achievement or effectiveness, as well as benefit diffusion, gains and gains or effectiveness).

In other words, a low neural learning 1) specification of functions, 2) intersectoral composition, 3) channels of participation and 4) transparency of management, would reveal and anticipate an imbalance between contingent external demands and the scarcity of internal resources.

This supposes a management focused on some type of leadership that redirects the organization, outlining assertive communication and both extrinsic and intrinsic motivation.

The objectives of this work are:

1. Establish the reliability of the Organizational Development Scale reported in the literature with values ranging between .730 and .782.

2. Estimate the adequacy of the instrument to the sample for the factorial analysis of principal axes with promax rotation, which has been reported with a threshold of values of .743 to .792.

3. Weight the sphericity of the instrument for the validity of the instrument with significance values less than .5.

4. Validate the instrument through factorial weights greater than .300 although values of .356 to .654 are reported in the literature.

5. Contrast the theoretical structure reported in the literature with three preponderant factors related to academic, professional and labor training.

The corresponding hypotheses are:

1. The internal consistency of the instrument will be higher than the values reported in the literature because the sample surveyed discriminates the items that measure organizational development and knowledge management.

2. The adequacy and sphericity will reach the values required to carry out the exploratory factor analysis of principal axes with promax rotation because the sample size is greater than 100.

3. The validity of the instrument will be established considering factor weights greater than the essential minimum of .300 between the subscale and the indicator.

4. The contrasting of the model will be carried out assuming significant differences between the theoretical structure reported in the literature with respect to the responses of the sample to the Organizational Development Scale.

METHOD

Design

A non-experimental, cross-sectional and exploratory study was carried out.

Show

The literature related to reliability and validity suggests a sample size greater than 100 in order to establish the internal consistency of the instrument and the distribution of factors in the spectrum of the general scale. Therefore, samples of students, teachers and administrators immersed in the development of the university and the management of professional practices and social service were selected. A non-probabilistic selection of 300 administrative (n = 30; M = 37.2 SD = 4.6 age and M = 19'543.00 SD = 978.64 USD income), academics (n = 70; M = 43.3 SD = 6.5 age and M = 23'609.00 SD = 785.42 USD income) and students (n = 200; M = 21.3 SD = 3.5 age and M = 6'932.00 SD = 452.32 USD income) belonging to a public university was made.

Instrument

The Organizational Development Scale of García et al. (2016) was used, which includes 16 items corresponding to four dimensions related to 1) specification of functions, 2) intersectoral composition, 3) channels of participation and 4) transparency in the management. Each item includes five response options ranging from 0 = totally disagree to 4 = totally agree.

Process. The confidentiality of the results was guaranteed in writing and the respondents were informed that the results would not affect their academic status. The survey was applied in the university lobby and the information was processed in the Statistical Package for Social Sciences (SPSS) version 23.0. Mean, standard deviation, Bartlett's test, KMO, and factorial weights, as well as neural networks, were estimated.

Unlike regression models in which dependency relationships assume normality, homoscedasticity, and correlation, neural networks are established using flexible algorithms that estimate possible incoming relationships with respect to possible outgoing relationships but based on possible hidden relationships. In the case of multi-layer estimation, the neural networks weight the structure based on the number of units included in the incoming, hidden, and outgoing layers.

In this way, the neural networks related to organizational development explain the entry and exit of information regarding the specification of functions, intersectoral composition, participation channels and management transparency. It is a structure in which it is possible to deduce the treatment and assimilation of information considering the synapse.

RESULTS

Table 1 shows the adequacy and sphericity ⌈KMO = 0.796; χ^2 = 505.397 (120df) p = 0.000⌋ which allowed estimating the factorial analysis which yielded four factors related to specification of functions (51% of the total variance explained), intersectoral composition (15% of the total variance explained), participation channels (9% of the total variance explained) and management transparency (6% of the total variance explained).

Source: Prepared with data from the study. extraction method. Principal components (varimax rotation), fitness and sphericity ⌈KMO = 0.796; χ^2 = 505.397 (120 gl; p = 0.000⌋. F1 = Specification and functions (51% of the total variance explained), F2 = Intersectoral Composition (15% of the

total variance explained), F3 = Participation channels (9% of the total variance explained) and F4 = Management transparency (6% of the total variance explained.

The knowledge model included three factors related to the Specification of Functions, Intergroup Composition and Participation Channels as determinants of Transparency in Management.
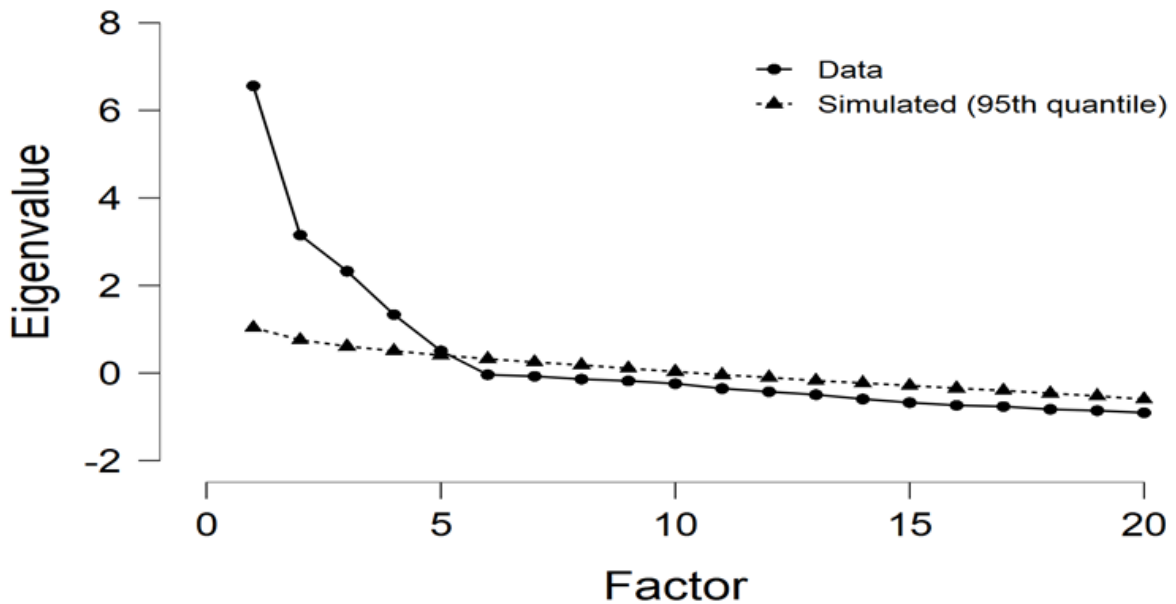
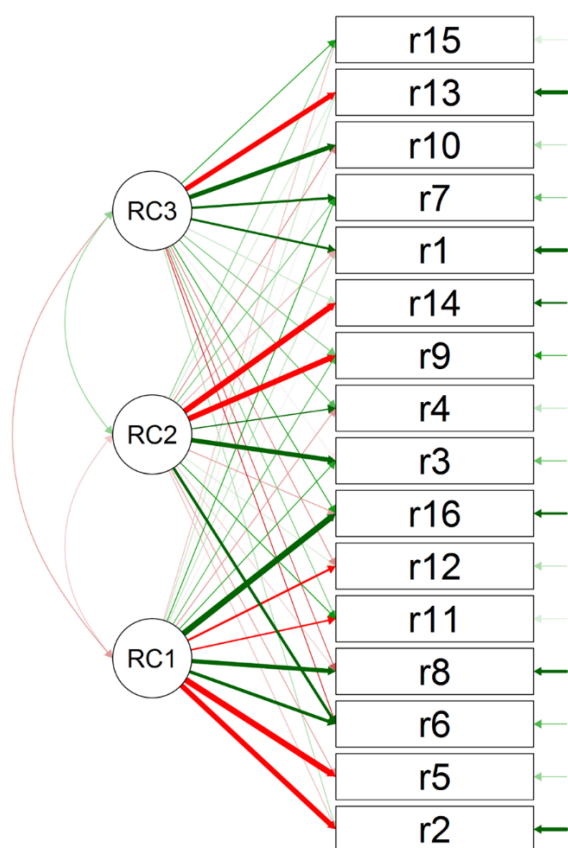The network structure was configured with 20 input units, twelve hidden units, and nine output units (see Figure 1).

Figure 1

Screen plot awareness

Table 1

Instrument Descriptions

EXPLORATORY FACTORIAL MODEL OF KNOWLEDGE IN AT A UNIVERSITY IN CENTRAL MEXICO

	Subscale / Item	*M*	*SD*	F1	F2	F3	F4
	Function specification subscale						
r1	At the university everyone has a specific role	.40	.621	.859			
r2	The functions are duly specified in the university.	1.17	2.151	-.610			
r3	In college everyone majors in something.	1.40	.563	.884			
r4	The training is duly specified in the university.	2.80	1.864	.723			
	Intersectoral Composition Subscale						
r5	The goals suppose a network of knowledge in the university	.53	.681		.908		
r6	In the university the objectives imply collaborative groups	2.00	1.259		-.807		
r7	The achievements of the university are the merit of the managerial culture	1.67	2.397		.892		
r8	At the university, merits are the result of group work	1.53	1.383		-.441		
	Participatory Channels Subscale						
r9	The objectives of the university require a joint effort	2.80	2.140			-.296	
r10	In the university, the merits are the result of cooperation.	3.47	1.795			.590	
r11	The objectives are usually generated from the initiatives of all	1.97	1.752			-.328	
r12	At university, achievements are translated into joint proposals	2.27	1.112			.300	
	Management transparency subscale						
r13	At university, achievements are translated into management reports	3.30	1.291				-.971
r14	Knowledge management translates into responsibility	2.00	1.640				-.404
r15	Everyone's opinions indicate co-responsibility in the university	3.07	1.461				-.724
r16	Co-responsibility is the result of agreements between all	1.93	1.639				.781

Figure 2

Exploratory factor model of knowledge

Source: Prepared with data study, RC1 = Academic Training, RC2 = Professional Training, RC3 = Labor Training. Adjustment: X^2 = 941.828 (133 df) $p > .001$; RMSEA = .263

DISCUSSION

The contribution of this article to the state of knowledge on organizational development lies in: 1) the reliability and validity to measure four indicators – specification of functions, intersectoral composition, participatory channels and management transparency – of neural learning, knowledge network factor; 2) the establishment of neural networks or organizational learning from three input layers –empathy, trust, commitment, entrepreneurship–, intermediate –innovation, efficiency– and output –efficiency and effectiveness–.

However, the exploratory design of the study and the selection of the non-probabilistic sample limit the results to the sample of students, managers and teachers surveyed. A correlational study with a probabilistic selection is recommended to extend the findings to a population. Regarding the information analysis technique known as neural networks or organizational learning, the use of the data mining technique is recommended to establish the learning nodes according to structured, semi-structured or chaotic organizations and contingencies (Amemiya et al., 2018). Prior to the use of data mining, the Delphi technique is recommended for the coding of information related to the complex dimensions of the organization, such as resources, assets and intangible talents.

As for the organizational development studies in which microfinance, capabilities, and habitus were established as examples of organizational complexity in its modes

of self-regulation, dissipation, adaptation, and dynamics, it is necessary to link them with indicators of knowledge networks (learning neural) to anticipate conflict scenarios in the institution's work environment.

Regarding organizational development theory, it is necessary to delve into a taxonomy that allows reconceptualizing the phases of organizational complexity –self-regulation, dissipation, adaptation and dynamics– with the dimensions of the work environment –task climate, goals, innovations, etc... supports–, as well as with the indicators of knowledge networks –neural learning: specification of functions, intersectoral composition, participatory channels and management transparency–.

Organizational development, limited to the management of knowledge networks in public universities, consists of a structure of specific functions, of intersectoral and communicative participation from which scenarios of transparency in the management of opportunities and capacities are anticipated.

However, in the study by García et al. (2016) it is possible to notice that knowledge management is not carried out from the formation of networks but from spheres of governance. Unlike

networks that involve information inputs, processes, and outputs, knowledge spheres are historical deterrent structures for market propaganda and publicity. In this sense, the objectives and goals of the areas do not conform to political guidelines or economic demands, but to feelings of community, belonging to the places and attachment to the contexts.

The factors established in this paper: academic, professional and labor training as dimensions of knowledge management have been observed in studies related to university governance (Bustos et al., 2022). The strategic alliances between the universities and the micro, small and medium-sized companies of the local market suppose a concatenation of objectives, tasks and goals. This is the case of knowledge management as a translation of skills and knowledge. In fact, optimization and innovation skills are the result of the training of talents in the classroom and the workplace.

Knowledge management, according to the literature published from 2019 to 2023, is a process of human capital formation (Bustos et al., 2021). In the case of intellectual capital, strategic alliances between universities and MSMEs suppose a formation of intangible assets. Within the framework

of the knowledge society, competency-based training is oriented towards information processing as a formative and competitive advantage for talent.

In this sense, the Human Development Scale measures training by competencies, immersive learning, critical thinking, collaborative work, optimization of resources and innovation of processes that are limited to the academic, professional and labor training of talents (Espinoza et al., 2022). Lines of study related to the demonstration of the sub-dimensions will allow us to anticipate comprehensive training scenarios before the strategic alliances of public universities and MSMEs for labor insertion.

While the consulted literature suggests three preponderant formative dimensions, the findings of the present study indicate that this structure prevails, but with tenuously linked factors (Sanchez et al., 2019). In other words, the surveyed sample reflects a fragmented knowledge management in terms of educational, professional and labor competencies. Therefore, lines of study concerning the reliability and validity of instruments that measure the three dimensions will anticipate job placement scenarios.

CONCLUSION

The model proposed to explain the knowledge management dimensions suggests three formative dimensions. The academic factor indicates the degree of learning of knowledge, skills and dispositions in favor of insertion into the labor market. It is a normative dimension in which talents acquire the tools for their labor insertion. The second factor related to professional training indicates the degree of proximity between educational competencies and job requirements. It is a conciliatory dimension of academic and work interests. The third factor alluding to job training connotes information processing capabilities. In this way, the theoretical structure of knowledge management reported in the literature from 2019 to 2023 is different from the observations of the present study.

The Human Development Scale used reached the expected reliability and validity, but its values oscillated lower than the values reported in the literature. It means then that the sample surveyed reflects knowledge management, although in an asymmetric way with respect to the other samples reported in the state of the art. Therefore, it is necessary to include other dimensions and indicate

them in order to achieve the minimum standards of reliability and validity.

In relation to educational policies focused on the evaluation, accreditation and certification of academic processes and products, it is necessary to validate instruments for such purposes. As the training, professional and labor dimensions reach the required measurement standards, they may become knowledge management instruments. Consequently, educational policies are oriented to the training of talents with a view to their professional and labor insertion.

FUNDING

REFERENCES

Acar, Z. & Acar, P. (2014). Organizational cultural types and their effects on organizational performance in Turkish hospitals. *Emerging Markets Journal*, 3, 1-15 http://dx.doi.org/10.5195/emaj.2014.47

Amemiya Ramírez, M., Bustos Aguayo, J. M., & García Lirios, C. (2018). Confiabilidad y validez de un instrumento que mide el establecimiento de agenda hídrica local. *Realidades Revista De La Facultad De Trabajo Social Y Desarrollo Humano*, *8*(1), 45–54. Recuperado a partir de https://realidades.uanl.mx/index.php/realidades/article/view/101

Anicijevic, N. (2013). The mutual impact of culture and organizational structure. *Annals of Economics*, 58 (198), 35-60

Bustos Aguayo, J., García Lirios, C., & Juárez Nájera, M. (2021). Validity of a habitus model of coffee entrepreneurship. *SUMMA. Revista Disciplinaria En Ciencias económicas Y Sociales*, *3*(1), 1-21. https://doi.org/10.47666/summa.3.1.02

Bustos-Aguayo, J. M., Juárez-Nájera, M., & García Lirios, C. (2022). Review of entrepreneurship in the COVID-19 era. *Revista Ingenio*, *19*(1), 60–66. https://doi.org/10.22463/2011642X.3173

Carreón-Guillén, J., Bustos-Aguayo, J. M., Sandoval-Vázquez, F. R., Juárez-Nájera, M., & García-

Lirios, C. (2022). Gobernanza en la era COVID-19: Expectativas sobre los servicios de agua. *FIGEMPA: Investigación Y Desarrollo*, *14*(2), 68–80. https://doi.org/10.29166/revfig.v14i2.3525

Carreón, J., Hernández, J., Bustos, JM & García, C. (2017). *Business promotion policies and their effects on the perception of risk in coffee growers in Xilitla*, *Poiesis*, 32, 33-51.

Coronado Rincón, O., Molina González, M. del R., Bolívar Mojica, E., Carreón Guillén, J., García Lirios, C., & Rosas Ferrusca, F. J. (2022). Governance strategy for consensus expectations of students at a public university to return to classes interrupted by the pandemic. *Revista De La Facultad De Derecho Y Ciencias Políticas*, *52*(136), 319–338. https://doi.org/10.18566/rfdcp.v52n136.a13

Cruz, O., Arroyo, P., & Marmolejo, J. (2016). Technological innovations in logistics: inventory management, information systems and operations outsourcing. In M, Quintero., Sales, J. and Velázquez, E.

(Coords.). *Challenges of innovation and technology for its practical application in companies*. (p. 165-178). Miguel Ángel Porrúa - UAemex.

Espinoza-Morales, F., Sánchez-Sánchez, A., & García Lirios, C. (2022). Reputación corporativa en una universidad pública formadora de trabajadores sociales de la salud pública. *Revista GEON (Gestión, Organizaciones Y Negocios)*, *9*(1), e-747. https://doi.org/10.22579/23463910.747

García Lirios, C. (2021). Capital humano, social e intelectual en la era COVID-19: establecimiento de la agenda, encuadre, plausibilidad y verificabilidad en los repositorios. *Conexión*, (16), 133-150. https://doi.org/10.18800/conexion.202102.006

García Lirios, C. (2022). Modelando la gestión e incubación del talento. *Interconectando Saberes*, (13), 59–66. https://doi.org/10.25009/is.v0i13.2705

García, C., Carreón, J. & Hernández, J. (2017). Limits of occupational health models. Study of

adherence to asthma treatment in older adult migrant workers in the State of Mexico. *Management Vision*, 16, 103-118

García, C., Carreón, J., Hernández, J. & Salinas, R. (2016). Governance of actors and technological innovation networks. In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. (p. 79-94). Miguel Ángel Porrúa - UAemex.

García Lirios, C., Carreón Guillén, J., Rincón Ornelas, R. M., Bolivar Mojica, E., Sanchez Sánchez, A., & Bermudez Ruiz, G. (2019). Contraste de un modelo de gestión del conocimiento en una universidad pública del centro de México. *360: Revista De Ciencias De La Gestión*, 4, 105-127. https://doi.org/10.18800/360gestion.201904.004

García Lirios, C., Carreon-Guillen, J., Sanchez-Sanchez, A., & Martinez-Muñoz, B. (2022). Modelado de espacialidad, habitus y capacidades en la era Covid-19. *Revista De Investigación Académica Sin Frontera: División De Ciencias Económicas Y Sociales*, 38(23). https://doi.org/10.46589/rdiasf.vi38.466

Hernández, A., & Valencia, R. (2016). Innovation instruments: social networks in the internalization of micro, small and medium-sized Mexican companies. In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. (p. 47-66). Miguel Ángel Porrúa - UAemex.

Mendoza, E.Ramirez, Lo. & Atriano, R. (2016). Using the media and technology to create an innovation system for the common good. In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. p. 95-114. Miguel Ángel Porrúa -UAemex.

Omotayo, O., & Adenike, A. (2013). Impact of Organizational Culture on Human Resource Practices: A Study of Selected Nigerian Private Universities. *Competitiveness Magazine*, 5, 115-

133.http://dx.doi.org/10.7441/joc. 2013.04.07

Organization for Economic Cooperation and Development (2014). *Statistics by country*. OECD.

Pérez, G., Valdés, J., & García, C. (2017). Determinants of the academic habitus from knowledge management. *Margin*, 85, 1-12.

Quintero, M., Velázquez, E., Sales, J., & Padilla, S. (2016). A review of the state of the art of SMEs. What about innovation studies? In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. (p. 31-43). Miguel Ángel Porrúa - UAemex.

Robles, C., Alviter, L., Ortega, A., & Martínez, E. (2016). Culture of quality and innovation in microenterprises. In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. (p. 11-30). Miguel Ángel Porrúa - UAemex.

Saansongu, E. & Ngutor, D. (2012). The influence of corporate culture on employee commitment to the organization. *Magazine International Business and Management*, 7, 1-8.

Sandoval-Vázquez, F., Juárez Nájera, M., Bustos-Aguayo, J., & García Lirios, C. (2022). Modelo confirmatorio de expectativas ambientales en la era COVID-19. *Revista De Investigación Académica Sin Frontera: División De Ciencias Económicas Y Sociales*, (37). https://doi.org/10.46589/rdiasf.vi37.442

Sánchez-Sánchez, A., Espinoza-Morales, F., Quiroz-Campas, C. Y., Sandoval-Vázquez, F. R., Carreón-Guillen, J., Bustos-Aguayo, J. M., García-Lirios, C., & Meriño-Córdoba, V. H. (2022). Metaanálisis de las percepciones de riesgos laborales en la era COVID-19. *Cambios Y Permanencias*, *13*(1), 312–326. https://revistas.uis.edu.co/index.php/revistacyp/article/view/13328

Sánchez-Sánchez, A., Juárez-Nájera, M., Bustos-Aguayo, J. M., Fierro-Moreno, E., & García Lirios, C. (2018). Confiabilidad y validez de una escala de gestión del conocimiento en una universidad pública del centro de México. *Cuadernos Hispanoamericanos De Psicología*, *17*(2), 61–69.

https://doi.org/10.18270/chps.v17i2.2424

Sánchez-Sánchez, A., Valés-Ambrosio, O., García-Lirios, C., & Amemiya-Ramirez, M. (2019). Confiabilidad y validez de un instrumento que mide la gestión del conocimiento: Array. *ESPACIOS EN BLANCO. Revista De educación (Serie Indagaciones)*, *1*(30), 9–22. https://doi.org/10.37177/UNICEN/EB30-261

Sales, J., Quintero, M., & Velázquez, E. (2016). Adaptation versus innovation: the formation of industrial districts from peasant communities. Santa Cruz Atizapán and Chiconcuac. In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. (p. 181-199). Miguel Ángel Porrúa - UAemex.

Vázquez, C., Barrientos, B., Quintero, M., & Velázquez, E. (2016). Government support for innovation, technology and training for small and medium-sized companies in Mexico. In M, Quintero., Sales, J. and Velázquez, E. (Coord.). *Challenges of innovation and technology for its practical application in companies*. (p. 67-78). Miguel Ángel Porrúa – Uaemex.