Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

https://doi.org/10.23913/ride.v11i21.775

Artículos Científicos

La gestión del conocimiento en instituciones educativas

Knowledge management in educational institutions

Gestão do conhecimento em instituições de ensino

Jesús Antonio Álvarez-Cedillo
Instituto Politécnico Nacional – UPIICSA, México
jaalvarez@ipn.mx
https://orcid.org/0000-0003-0823-4621

Mario Aguilar-Fernández
Instituto Politécnico Nacional – UPIICSA, México
maguilarfer@ipn.mx
https://orcid.org/0000-0003-2621-8692

Teodoro Álvarez-Sánchez
Instituto Politécnico Nacional – CITEDI, México
talvarezs@ipn.mx
https://orcid.org/0000-0002-2975-7125

Brenda García Jarquín
Instituto Politécnico Nacional CDMX – ZACATENCO, México
jarquin_garcia@yahoo.com.mx
https://orcid.org/0000-0001-7192-2342

Julián Patiño Ortiz
Instituto Politécnico Nacional CDMX – ZACATENCO, México
jpatinoo@ipn.mx
https://orcid.org/0000-0001-8106-9293

Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

Resumen

La labor fundamental de la educación es hacer posible que el ser humano sea capaz de conducirse en la vida e interactuar con sus congéneres del modo más amable posible. Por ello, la institución educativa tiene que modificar algunas de las prácticas que si en la época de Humboldt eran necesarias, hoy son francamente inoperantes para el mismo desarrollo. Las instituciones educativas y la sociedad no pueden vivir separadas, por lo que tienen que abrirse, si es que la sociedad del conocimiento tiene pretensiones de ser tal. Ese permanente contacto entre el saber y las prácticas sociales es lo que tiene que ser el objetivo fundamental de una educación permanente. En el presente artículo, por tanto, se muestra la importancia de agregar la gestión de conocimiento a las instituciones educativas de posgrado e investigación, por medio de una exploración cuantitativa donde se destaca su uso, su prospectiva y sus consecuencias observables sobre una muestra de 3000 personas. El objetivo fue evaluar la gestión del conocimiento a través del cálculo del índice de medición de inteligencia organizacional en distintas instituciones educativas mexicanas. El resultado alcanzado fue 67.39 %, lo que representa grandes retos en materia de producción científica, principalmente.

Palabras clave: conocimiento, conocimiento explícito, gestión del conocimiento, índice de memoria de inteligencia organizacional educativa, instituciones educativas.

Abstract

The fundamental task of education is to make it possible for human beings to be able to conduct themselves in life and to be able to interact with their fellow human beings in the most friendly way possible. For this reason, the educational institution has to modify some of the practices that, if they were necessary in Humboldt's time, today are frankly inoperative for the same development. Educational Institutions and society cannot live separately, therefore they have to open up, if the knowledge society claims to be such. This permanent contact between knowledge and social practices is what must be the fundamental objective of permanent education. In this article, the importance of adding knowledge management to postgraduate and research educational institutions is shown, through a quantitative exploration where its use, its prospective and its observable consequences are highlighted, on a sample of 3000 people. That is, the intention of this article is to evaluate knowledge management through the calculation of the organizational intelligence

measurement index, in different Mexican educational institutions. The result achieved is 67.39%, which represents great challenges in terms of scientific production, mainly.

Keywords: knowledge, explicit knowledge, knowledge management, memory index of educational organizational intelligence, educational institutions.

Resumo

A tarefa fundamental da educação é permitir que o ser humano seja capaz de se conduzir na vida e interagir com o próximo da forma mais amigável possível. Por isso, a instituição educacional tem que modificar algumas das práticas que, se eram necessárias na época de Humboldt, hoje são francamente inoperantes para o mesmo desenvolvimento. As instituições educacionais e a sociedade não podem viver separadas, por isso têm que se abrir, se a sociedade do conhecimento afirma sê-lo. Esse contato permanente entre saberes e práticas sociais é que deve ser o objetivo fundamental da educação permanente. Neste artigo, portanto, mostra-se a importância de agregar a gestão do conhecimento às instituições de ensino de pós-graduação e à pesquisa, por meio de uma exploração quantitativa onde se destacam seu uso, sua perspectiva e suas consequências observáveis em uma amostra de 3.000. pessoas. O objetivo foi avaliar a gestão do conhecimento por meio do cálculo do índice de medição da inteligência organizacional em diferentes instituições de ensino mexicanas. O resultado alcançado foi de 67,39%, o que representa grandes desafios em termos de produção científica, principalmente.

Palavras-chave: conhecimento, conhecimento explícito, gestão do conhecimento, índice de memória de inteligência organizacional educacional, instituições educacionais.

Fecha Recepción: Septiembre 2019 **Fecha Aceptación:** Septiembre 2020

Introduction

Knowledge management (KM) - known as knowledge management (Rubinstein, 2005) - seeks to transfer explicit knowledge and use it as a resource available to others in the same organization. This process involves developing techniques to capture, organize and store knowledge, using collaborators to transform it as an intellectual asset that provides benefits and can be shared.

Currently, information and communication technologies (ICT) allow to have tools that promote knowledge management in companies, which is basically based on the collection, transfer, security and systematic administration of information, together with a system designed to help make the best use of that knowledge (Correa, Gómez & Cano, 2010).

Its use goes beyond information technology, since all the members of an organization — from the highest manager to the lowest position, in any area— contribute knowledge and experiences (Aguilera and Riascos, 2009). Knowledge management is made up of the following essential elements (Hernández, Marulanda y López, 2014):

- Build, collect and organize existing knowledge to facilitate the creation of new knowledge.
- Aim for innovation.
- Reuse knowledge.

Through the use of knowledge management, the ability of people who rely on the organization to achieve better performance is developed. Knowledge management grows informally through discussions and sessions that formally represent training programs as an emerging practice. Based on the high management of knowledge, the institution represents the main and official spokesperson for knowledge, and the establishment of corporate plans and other practices depends on it (Pávez, 2000).

The term institution, on the other hand, is used to refer to certain norms that express values in the face of a social reality (Valdivieso, 2001). Four concepts are used to define an institution:

- The institution is a synonym of social regularity that refers to the application of norms and presents social values. The individual always has character within the group and is controlled by different internal and external regulations.
- The institution as a synonym of establishment to the organization. It expresses a specialized function that has its own space.
- The institution as an entity before the existence of the symbolic world.

- The social institution: entity that marks what is allowed, what is prohibited, recognition, obedience.

Today it is recognized that institutions are the fundamental mechanisms for the development of our society, which are governed by general rules that allow the coordination of subjects and the management of conflicts (Hodgson, 2011).

Educational institutions focus on the social part on the integral formation of the individual, the strengthening of traditional values and the improvement of the individual to be a better person (Unesco Representation in Peru, 2011). They are characterized, in an inappropriate way, by diagnosing and managing the environment of an organizational culture where staff, learning, teamwork and knowledge are scarcely valued.

It lacks a shared vision to achieve the mission, vision and institutional commitment of all instances (from management), and generally fails to coordinate and develop strategies that stimulate and motivate staff to develop their productive capacity.

With the above explained, it can be said that the objective of this research is to evaluate knowledge management through the calculation of the organizational intelligence measurement index in different Mexican educational institutions.

Knowledge management as a competitive strategy in educational institutions

Knowledge as a resource has become the competitive strategy for nations, educational institutions and people. In today's society there has been a tangible change in the nature and importance of knowledge and its relationship to prosperity (Everett, Geoffrey & Carl, 2006).

The basic contrasts that grant economic advantages to countries, associations and individuals for longer periods end up being those that depend on skills and information, and are called elusive resources or academic capital (Kabir, 2013; Rubinstein, 2005).

Information technology (IT) has made it possible to change the way of life, connections and the way people work. The data society and the learning society are represented by thinking about information as the focal point of the various exercises by individuals and associations to generate profitability (Coll, 2009). The learning society, age, preparation and the change of data into useful information become the essential sources of profitability and power.

Due to extraordinary advances in data and exchange innovations, the new connections between individuals and organizations are grouped as “systems” that emerge without inhibitions and are continuously reconfigured (Avendaño-Villa, Cortés-Peña and Guerrero-Accounts, 2015).

The Network Society allows the construction of several individual networks that depend on individual interests or individual affinities (Castells, 1997). The system makes it possible for people with comparative activities to strengthen their feelings and establish innovative informal communities.

In today's learning society, information is explicitly the factor and the room for maneuver that allows age and the support capacity of associations in today's economy to react to the difficulties that the new society demands today (Racionero and Serradell, 2005). In today's teaching fundamentals, due to the progressions that have occurred over the past decade, the advancement of new correspondence and advances in data have given organizations a more prominent capacity and productivity to deal with their academic capital alone. to create new benefits, articles, patents, ventures and the development of another management methodology (Begoña, 2008).

Educational institutions are undoubtedly changing the way the organizational economy works in this globalized world. Intelligently, not all nations have distinguished similar opportunities to present this way of thinking, in view of the management of elusive resources to mix learning and increase rivalry and market estimation of organizations in Mexico (Minakata, 2009).

Review of previous research

Of the multiple documents that have been written on knowledge management in higher education institutions, one could mention the work of Alfonzo (2018) -who explains the importance of knowledge management for the strengthening of educational institutions-, as well as the research by Lara (2015, 2016), who focuses on knowledge management as a technology facilitator and as a didactic and educational tool to teach and learn collaboratively. Barroso (2011), for his part, presents a work with double intention, since a) determines the way to acquire, use and transfer knowledge by higher education institutions and scientific research centers in the state of Yucatán, and b) offers an assessment of the knowledge management of these institutions, through a scale of competencies.

Alzate (2015), on the other hand, analyzes knowledge management as a challenge for educational institutions in Colombia, including the interdisciplinary convergence of other fields of knowledge. Naranjo, González and Rodríguez (2016) use knowledge management as a framework for designing strategies for HEIs to establish themselves as knowledge organizations. Moscoso-

Zea and Luján-Mora (2017) describe a practical guide for the implementation of knowledge management in higher education institutions. Correa-Díaz, Benjumea-Arias and Valencia-Arias (2019) study the way in which knowledge management facilitates the improvement of problematic educational situations in the current economy.

Another series of documents -which as a purpose have measured knowledge management in different organizations- are the following: Lobato-Baez, Morales-Rosales, Toriz-Palacios and López-Arciga (2018) propose the construction of a knowledge management model for the software industry in Mexico, in which indicators are collected from the application of the organizational intelligence measurement index matrix (IMIO). Bernal, Torres, Turriago and Sierra (2010) measure knowledge management in different organizations with the IMIO matrix.

Methodological design

The present study is quantitative and exploratory in nature, and was carried out with a sample of 3000 people (60% men and 40% women. Of all of them, 20% are managers and middle managers, and 80% teachers, between 30 and 75 years of age, with an average working age of 20 years) from twelve educational institutions of different sizes (large, medium and small). The application of the selected instrument was a survey during the period from February to October 2019. The survey was made up of two parts:

- Level of importance of learning: It is composed of a study that includes twelve explanations identified with the appointment, the application and the learning age in the instruction in relation to the preparation, the ecological examination and the use of advances and data correspondences. This review was explicitly planned for this research and is organized by a Likert scale (Spooren, Mortelmans & Denekens, 2007), where the respondent rated each advertisement as indicated by their discernment, on scores from 1 to 4 (1 = strongly deviated, 2 = partially different, 3 = partially concurrent, and 4 = fully concurrent).
- • Organizational intelligence measurement index network, made up of three measures or variables: authorized memory, the basic network of limits and culture, mental frameworks and practices. Similarly, each measurement is made up of several joints that are displayed in the internal boxes of the particular grid, and are scored on a scale of 1 to 4 (1 = bad, 2 = fair, 3 = good, and 4 = excellent).

Revista Iberoamericana para la Investigación y el Desarrollo Educativo
ISSN 2007 - 7467

Methodology for calculating the organizational intelligence measurement index

The matrix of the organizational intelligence measurement index is an instrument structured by Arboníes and Aldazabal (2005), which has the objective of evaluating knowledge management in organizations (Martínez and Martínez, 2010). To calculate this list, the following variables were defined:

1. The calculation of the generation of value is made from the capacities of the organization (GVACO). The different capacities that condition the generation of value in different proportions were considered:

a) Ability to monitor (CV);

b) Responsiveness (CR);

c) Ability to resolve (CRP);

d) Ability to learn (CA);

e) Capacity to innovate (CI);

f) Capacity to exploit knowledge (CEC).

2. Generation of value based on the K-facts: The identification and evaluation of knowledge flows in educational institutions (GVAPE) is carried out. This is determined for the internal and external points of view, which are interrelated for the satisfaction of the vital destinies of the association. The capacities that determine the generation of value in different proportions were considered:

a) Generation of value from the perspectives of the organization's monitoring capacity (GVAPE);
b) Projects (Po);
c) Patents (Pa);
d) Graduate students (Ag);
e) Links (Vi);
f) Book chapters (CL);
g) Congresses and symposia (Co).

3. Generation of value from the organizational memory / structural capital GVAMO. The elements identified with authorized memory demonstrate the age given the internal and external points of view, as pursued: GVAMO depends on Po (projects), Pu (publications), Pa (patents), Ag (graduate students), Vi (links) , CL (book sections), Co (congresses and symposia).

4. Calculation of the generation of value based on the culture, skills and organizational behavior GVACUL. Aspects related to culture, skills, and organizational behavior show generation according to internal and external perspectives. It is based on Po (projects), Pu (publications), Pa (patents), Ag (graduate students), Vi (links), CL (book chapters), Co (conferences and symposia).

Based on these four components of value generation, the organizational memory index (IMIO) is a function of:

- GVACO: Generation of value from the capabilities of the organization.
- GVAPE: Generation of value from the perspectives of the organization.
- GVAMO: Generation of value from organizational memory.
- GVACUL: Generation of value from culture, skills and organizational behavior.

In this way, the IMIO will be determined based on these four values according to equation 1.

$$IMIO = f\,(GVACO + GVAPE + GVAMO + GVACUL) \quad (1)$$

The matrix calculation consists of completing each cell, with the scale mentioned above: bad, fair, good or excellent.

Analysis and interpretation of the results

By fully qualifying the matrix, one of the value generators is reached, represented by a color that reflects the state of the answer. The above is classified as follows:

- Green: There are no distortions or breaks between capabilities and perspectives, as they are in a state with a capacity between 76% and 100%.
- Yellow: Educational organizations are in significant difficulty; you are in a capacity between 51% and 75%, where you run the risk of not having capabilities compared to prospects or vice versa, and it is an alert about the possibilities for improvements either in prospects or capabilities.
- Red: Educational institutions present distortions or breaks between critical perspectives and capacities, and they need immediate attention, that is, they are well below 50% of capacities compared to perspectives.

This convention of colors allows to analyze the aspects in which the capabilities are not offering a correct answer for each of the analyzed perspectives. In addition, they can be represented on a dashboard graphically.

Regarding organizational memory and culture, they are shown separately and analyzed by relating the knowledge accumulated by the organization (memory) and the response to society (culture and skills). Table 1 shows the values obtained for the GVAMO organizational memory.

Tabla 1. Capacidades relacionadas con memoria organizativa

Proyectos	**Publicaciones**	**Patentes**	**Alumnos graduados**	**Vinculaciones**	**Capítulos de libro**	**Congreso**	**GVAMO**
70.5 %	69.78 %	69.53 %	70.5 %	70.14 %	70.14 %	71.12 %	71.12 %

Fuente: Elaboración propia

Table 2 shows the relationship of capabilities with completed projects.

Tabla 2. Capacidades relacionadas con proyectos realizados

	CV	**CR**	**CRP**	**CA**	**CI**	**CEC**	**TOTAL**
	CÓMO SE DESARROLLAN	QUÉ TECNOLOGÍAS SON USADAS	RESOLUCION DE PROYECTOS	CAPACIDAD DE APRENDER	NUEVOS CONOCIMIENTOS	NUEVOS PROYECTOS	
Proyectos	72.12 %	70.5 %	71.5 %	68.5 %	70.5 %	60.0 %	80.6 %

Fuente: Elaboración propia

Table 3 shows the relationship of capacities with articles made.

Tabla 3. Capacidades relacionadas con artículos realizados

	CV-Cap. Vigilar	**CR-Cap. respuesta**	**CRP Cap. Resolver problemas**	**CA -Cap. aprender**	**CI-Cap. innovar**	**CEC-Cap. Explotación del conocimiento**	**TOTAL**
	Lo que publican otros centros	Nuevos campos	Otros artículos	Artículos publicados	Nuevos artículos	Divulgación	
Artículos	68.75 %	68.75 %	67.19 %	70.5 %	69.47 %	65.27 %	68.32 %

Fuente: Elaboración propia

Table 4 shows the relationship of the capacities with patents issued.

Tabla 4. Capacidades relacionadas con patentes realizadas

	CV-Cap. Vigilar	**CR-Cap. respuesta**	**CRP Cap. Resolver problemas**	**CA -Cap. Aprender**	**CI-Cap. innovar**	**CEC-Cap. Explotación del conocimiento**	**Total**
	Lo que publican otros centros	Nuevos c	Otras patentes	Patentes publicadas	Nuevas patentes	Divulgación	
Patentes	8.75 %	2.25 %	67.19 %	1.5 %	0.95 %	65.27 %	24.31 %

Fuente: Elaboración propia

La tabla 5 muestra la relación de las capacidades con alumnos graduados.

Tabla 5. Capacidades relacionadas con alumnos graduados

	CV-Cap. vigilar	**CR-Cap. respuesta**	**CRP Cap. Resolver problemas**	**CA - Cap. Aprender**	**CI-Cap. innovar**	**CEC-Cap. Explotación del conocimiento**	**TOTAL**
	Lo que graduados otros centros	graduados	Graduados atorados	Trabajos realizados	Nuevos campos	Divulgación	
Alumnos graduados	74.66 %	73.48 %	71.09 %	74.12 %	71.77 %	71.77 %	72.81 %

Fuente: Elaboración propia

Table 6 shows the relationship of the capacities with connections made.

Tabla 6. Capacidades relacionadas con vinculaciones realizadas

	CV-Cap. vigilar	**CR-Cap. respuesta**	**CRP Cap. Resolver problemas**	**CA -Cap. Aprender**	**CI-Cap. innovar**	**CEC-Cap. Explotación del conocimiento**	**TOTAL**
	otros centros	vinculacion	Vinculación futura	Vinculaciones anteriore	Nuevos conocimientos	Divulgación	
Vinculaciones	24.66 %	33.48 %	21.09 %	14.12 %	11.77 %	11.77 %	19.48 %

Fuente: Elaboración propia

Table 7 shows the relationship of capacities with book chapters made.

Tabla 7. Capacidades relacionadas con capítulos de libro realizados

	CV-Cap. Vigilar	**CR-Cap. respuesta**	**CRP Cap. Resolver problemas**	**CA -Cap. aprender**	**CI-Cap. innovar**	**CEC-Cap. Explotación del conocimiento**	**TOTAL**
	Lo que publican otros centros	Nuevos campos	Otros capitulos	capitulos publicados	Nuevos capitulos	Divulgación	
Cap. Libros	70.14 %	70.50 %	70.00 %	14.12 %	71.25 %	69.53 %	60.9 %

Fuente: Elaboración propia

Table 8 shows the relationship of the capacities with congresses.

Tabla 8. Capacidades relacionadas con congresos realizados

	CV-Cap. vigilar	**CR-Cap. respuesta**	**CRP Cap. Resolver problemas**	**CA - Cap. Aprender**	**CI-Cap. innovar**	**CEC-Cap. Explotación del conocimiento**	**TOTAL**
	Asistencia de otros centros	Nuevos congresos	congresos	Ponencias	Nuevos temas	Divulgación	
Congresos	72.5%	71.50%	70.62%	74.12%	61.25%	69.53%	70.42%

Fuente: Elaboración propia

The result of all relationships is shown in table 9, where the final GVAPE index is expressed.

Tabla 9. El GVAPE final

GVAPE	
Proyectos	80.6 %
Artículos	68.32 %
Patentes	24.31 %
Alumnos graduados	72.81 %
Vinculaciones	19.48 %
Capítulos de libro	60.9 %
Congresos	70.42 %
GVAPE	56.69 %

Fuente: Elaboración propia

Table 10 shows the calculation of the generation of value from the GVACUL culture, skills and organizational behavior.

Tabla 10. El GVACUL

Participación proyectos	**Escritura artículos**	**Alumnos graduados**	**Vinculaciones concretadas**	**Escritura de Cap. Libros**	**Participación congresos**	**GVACUL**
72.51 %	68.55 %	74.32 %	70.42 %	70.10 %	72.17 %	71.34 %

Fuente: Elaboración propia

Table 11 shows the calculation of value generation based on the organization's capabilities (GVACO).

Tabla 11. El GVACO

CV-Cap. vigilar	CR-Cap. respuesta	CRP Cap. Resolver problemas	CA -Cap. Aprender	CI-Cap. Innovar	CEC-Cap. Explotación del conocimiento	GVACO
72.50 %	71.50 %	70.62 %	74.12 %	61.25 %	69.53 %	70.42 %

Fuente: Elaboración propia

In this way, the IMIO will be determined based on these four values, according to equation 1.

$$IMIO = f\frac{(70.42\% + 56.69\% + 71.12\% + 71.34\%)}{4} = \frac{269.57}{4} = 67.39\ \%$$

Discussion

The results of this study highlight that institutions must work and help their researchers to prepare links and patents, as well as to reinforce the publication of articles and book chapters. It is shown that in the field of dissemination, the values obtained are interesting, since dissemination is carried out in a systematic way.

Finally, a relevant aspect in the results of the Organizational Intelligence Memory Index (IMIO) for the total sample of the institutions participating in the study is that the element "capabilities" shows the least degree of value generation for their dynamics . This means that although there is a positive perception of the importance of knowledge in the context of institutions, it ultimately results more from criteria than from concrete actions aimed at developing skills. According to the theory on knowledge management, it is not enough to identify, acquire or create knowledge, but it is more important to have the capacities or competencies for the respective appropriation, creation and use of knowledge, for the generation of added value itself, and thus generate competitive advantages.

It is important to highlight the need for a qualitative and quantitative perspective at a higher level of systemic integration for this contribution. Likewise, the design, application and feedback (improvement) corresponds to future work, which will undoubtedly lead to learning in all dimensions and to strengthening the perspective of knowledge management.

On the other hand, in order to evaluate the results in relation to other similar documents, two studies were located. The first is that of Lobato-Baez, Morales-Rosales, Toriz-Palacios and López-Arciga (2018), who propose the construction of a knowledge management model for the software industry in Mexico. In this work, they compile indicators from the application of the organizational intelligence measurement index matrix (IMIO). The authors evaluated the viability and measured the improvements that were achieved in a period of four months in an SME in Tlaxcala (Mexico), which will allow the capture, storage, retrieval, management and administration of knowledge to contribute to the reduction of costs to improve the communication of the quality of service, among others.

The second research is that of Bernal, Torres, Turriago and Sierra (2010), who measure the knowledge management of 1,168 people from 48 participating organizations with the IMIO matrix. In this work, a knowledge management degree (GGC) equivalent to 72.10% was obtained, that is, good knowledge management. For the case of the present investigation, there is a disadvantage of a little more than 4%.

The most important limitation throughout the study is the lack of availability of the sample institutions. Future work is focused on expanding the sample size and on the design and validation (through simulators) of improvements.

Conclusions

In general, since the beginning of this century, in Mexico the accelerated development of information and communication technologies and the complexity acquired by the internet have caused society to be more interconnected and educational organizations to become increasingly complex. . This has caused repeated concern on the part of the academic community to promote activities related to training and research in the field of knowledge management and its relationships.

Managers of postgraduate or research educational institutions have begun to include strategies related to knowledge management in their development plans, as a factor that generates value for their competitive capacity. The government of Mexico, for two six-year terms, has been formulating national, regional and local agendas, where knowledge management is considered a priority for the development and competitiveness of each community.

For the case analyzed in this research, it is observed that in general - according to the results expressed by the respondents - there is interest and a significant degree of knowledge management on the part of the surveyed institutions, where the training of people, the analysis environment, the use of information and communication technologies, culture, attitudes and behavior, as well as organizational memory play an important role for the dynamics and to provide better results in this very important task, which is the investigation.

References

Aguilera, A. y Riascos, S. C. (2009). Direccionamiento estratégico apoyado en las TIC. *Estudios Gerenciales, 25*(111), 127-143.

Alfonzo, M (2018). Gestión del conocimiento e instituciones educativas. *Educ@ción en Contexto*, *4*(8), 158-177.

Alzate, O. F. (2015). La gestión del conocimiento un desafío para las instituciones educativas en Colombia: emergencias y tensiones desde la teoría del capital intelectual. *Rev. Gestión de la Educación*, *5*(2), 137-150.

Albornies Ortiz Ángel y Áldazabal Basauri Jon. Mik s. Coop. Sussex university. España. 2005

Avendaño-Villa, I., Cortés-Peña, O. F. y Guerrero-Cuentas, H. (2015). Competencias sociales y tecnologías de la información y la comunicación como factores asociados al desempeño en estudiantes de básica primaria con experiencia de desplazamiento forzado. *Revista Diversitas: Perspectivas en Psicología*, *11*(1), 13-36.

Barroso, F. (2011). Gestión del conocimiento en instituciones de educación superior y centros de investigación científica en el estado de Yucatán. *XVI Congreso Internacional de Contaduría, Administración e Informática*. Octubre 5, 6 y 7 de 2011, Ciudad Universitaria, CDMX.

Begoña, G. S. (2008). Tendencias actuales de la investigación en docencia universitaria. *Edusfarm, Revista d'Educació Superior en Farmàcia,* (1), 1-13.

Bernal, T. C., Torres, Turriago, Á. H. y Sierra, A. H. (2010). Aproximación a la medición de la gestión del conocimiento empresarial. *AD-MINISTE*, (16), 30-49.

Castells, M. (1997). *The Rise of the Network Society.* Chichester, West Sussex. United Kingdom: Wiley-Blackwell.

Coll, C. (2009). *Aprender y enseñar con las TIC: expectativas, realidad y potencialidades*. En Carneiro, R., Toscano, J. C. y Díaz, T. (comps.), *Los desafíos de las TIC para el cambio educativo* (pp. 113-126). Madrid: OEI-Santillana, Fundación Santillana.

Correa, E. A., Gómez, M. R. y Cano, A. J. (2010). Gestión de almacenes y tecnologías de la información y comunicación (TIC). *Estudios Gerenciales*, *26*(117), 145-171.

Correa-Díaz, A., Benjumea-Arias, M. y Valencia-Arias, A. (2019). La gestión del conocimiento: una alternativa para la solución de problemas educacionales. *Revista Electrónica Educare*, *23*(2), 1-27. Doi: https://dx.doi.org/10.15359/ree.23-2.1

Everett, F. H., Geoffrey, W. B., Carl, F. H. H. (2006). *Diccionario de teología*. Libros Desafio: España.

Hernández, A., Marulanda, C. E. y López, M. (2014). Análisis de capacidades de gestión del conocimiento para la competitividad de PYMES en Colombia. *Información Tecnológica*, *25*(2), 111-122.

Hodgson, G. M. (2011). ¿Qué son las instituciones? *Revista CS*, (8), 17-53.

Kabir, N. (2013). Tacit Knowledge , its Codification and Technological Advancement. *The Electronic Journal of Knowledge Management*, *11*(3), 235-243.

Lara, A. E. (2015). La gestión del conocimiento aplicada a la educación. *Rev. Gestión de la Educación*, *5*(2), 137-150.

Lara, A. E. (2016). La gestión del conocimiento aplicada a la educación. *Reflexión Académica en Diseño y Comunicación*, *27*.

Lobato-Baez, M., Morales-Rosales, L., Toriz-Palacios, A., López-Arciga, G. (2018). Knowledge management model for pymes of the mexican software industry. *DYNA Management*, *6*(1). Doi: http://dx.doi.org/10.6036/MN8927

Martínez, D. J. y Martínez, D. E. (2010). Matriz organizacional para la medición de los procesos de personal, una primera aproximación. *Pensamiento y Gestión*, (29), 1-24.

Minakata, A. A. (2009). Gestión del conocimiento en educación y transformación de la escuela. Notas para un campo en construcción. *Sinéctica*, (32), 1-21.

Moscoso-Zea, O. y Luján-Mora, S. (2017). Knowledge management in higher education institutions for the generation of organizational knowledge. *12th Iberian Conference on Information Systems and Technologies (CISTI)*. 1-7, Doi: 10.23919/CISTI.2017.7975823.

Naranjo, P. S., González, H. D. y Rodríguez, M. J. (2016). El reto de la gestión del conocimiento en las instituciones de educación superior colombianas. *Folios*, (44), 151-164.

Pávez, A. A. (2000). *Modelo de implantación de gestión del conocimiento y tecnologías de información para la generación de ventajas competitivas*. Valparaíso: Universidad Técnica Federico Santa María.

Racionero, S. y Serradell, O. (2005). Antecedentes de las comunidades de aprendizaje. *Educar, 35*, 29-39.

Representación de la Unesco en Perú (2011). *Manual de gestión para directores instituciones educativas*. Lima, Perú: Ministerio de Educación.

Rubinstein, G. (2005). Knowledge Creation. In *Encyclopedia of Social Measurement*. Elsevier Science Publishing Co Inc.

Spooren, P., Mortelmans, D. and Denekens, J. (2007). Student evaluation of teaching quality in higher education: development of an instrument based on 10 Likert scales. *Assessment & Evaluation in Higher Education, 32*(6), 667-679.

Valdivieso, S. (2001). North y el cambio histórico: luces y sombras de la nueva historia institucional. *Revista de Economía Institucional*, *3*(4), 157-172.

Rol de Contribución	Autor (es)
Conceptualización	Jesús Antonio Álvarez Cedillo.
Metodología	Brenda García Jarquín.
Software	Teodoro Álvarez-Sánchez.
Validación	Mario Aguilar Fernández.
Análisis Formal	Jesús Antonio Álvarez Cedillo ,Teodoro Álvarez Sánchez (IGUAL).
Investigación	Jesús Antonio Álvarez Cedillo ,Teodoro Álvarez Sánchez (IGUAL).
Recursos	Julián Patiño Ortiz.
Curación de datos	Mario Aguilar Fernández.
Escritura - Preparación del borrador original	Jesús Antonio Álvarez Cedillo
Escritura - Revisión y edición	Julián Patiño Ortiz
Visualización	Mario Aguilar Fernández
Supervisión	Jesús Antonio Álvarez Cedillo
Administración de Proyectos	Jesús Antonio Álvarez Cedillo
Adquisición de fondos	Brenda García Jarquín