

Volume 5, Issue 8 — January — June — 2018

**E
C
O
R
F
A
N**

Journal-Spain

ISSN-On line: 2444-3204

ECORFAN®

Indexing



ECORFAN-Spain

- LATINDEX
- Research Gate
- Hispana
- Universia
- Google Scholar
- Rebid
- Mendeley

ECORFAN-Spain

Editora en Jefe

RAMOS-ESCAMILLA, María. PhD

Redactor Principal

SERRUDO-GONZALES, Javier. BsC

Asistente Editorial

SORIANO-VELASCO, Jesus. BsC

Director Editorial

PERALTA-CASTRO, Enrique. MsC

Editor Ejecutivo

MIRANDA-GARCIA, Marta. PhD

Editores de Producción

ESCAMILLA-BOUCHAN, Imelda. PhD

LUNA-SOTO, Vladimir. PhD

Administración Empresarial

TREJO-RAMOS, Ivan. BsC

Control de Producción

RAMOS-ARANCIBIA Alejandra. BsC

DÍAZ-OCAMPO, Javier. BsC

ECORFAN Journal-Spain, Volume 5, Issue 8, January – June 2018, is a journal edited four-monthly by ECORFAN. 38 Matacerquillas street, Postcode: 28411. Moralarzal –Madrid
WEB: www.ecorfan.org/spain,
journal@ecorfan.org. Editor in Chief: RAMOS-ESCAMILLA, María. PhD, ISSN-On line: 2444-3204. Responsible for the latest update of this number ECORFAN Computer Unit. ESCAMILLA-BOUCHÁN, Imelda. PhD, LUNA-SOTO, Vladimir. PhD, 38 Matacerquillas street, Postcode: 28411. Moralarzal –Madrid, last updated June 30, 2018.

The opinions expressed by the authors do not necessarily reflect the views of the editor of the publication.

It is strictly forbidden to reproduce any part of the contents and images of the publication without permission of the National Institute of Copyright

Editorial Board

ROMAN-KALISCH, Manuel Arturo. PhD
Universidad Autónoma de Yucatán, Mexico

PÉREZ-RAMÍREZ, Rigoberto. PhD
Universidad Autónoma del Estado de México, México

MONTERO-PANTOJA, Carlos. PhD
Universidad de Valladolid, Spain

TAVERA-CORTÉS, María Elena. PhD
UPIICSA –IPN, Mexico

SOUSA-GONZÁLEZ, Eduardo. PhD
Universidad Autónoma de Nuevo León, Mexico

BLANCO-ENCOMIENDA, Francisco Javier. PhD
Universidad de Granada, Spain

SÁNCHEZ-TRUJILLO, Magda Gabriela. PhD
Universidad Autónoma del Estado de Hidalgo, Mexico

AZOR-HERNÁNDEZ, Ileana. PhD
Universidad de las Américas Puebla, Mexico

RAMÍREZ-MARTÍNEZ, Ivonne Fabiana. PhD
Universidad Andina Simón Bolívar, Bolivia

GUILLEN-MONDRAGÓN, Irene Juana. PhD
Universidad Autónoma Metropolitana, Mexico

GARCÍA-VILLANUEVA, Jorge. PhD
Universidad Pedagógica Nacional, Mexico

ALIAGA-LORDEMANN, Francisco Javier. PhD
Universidad de Zaragoza, Spain

GARCÍA-Y-BARRAGÁN, Luis Felipe. PhD
Universidad de Guanajuato, Mexico

ARANCIBIA -VALVERDE, María Elena. PhD
Universidad Pedagógica Enrique José Varona de la Habana, Cuba

TORRES-HERRERA, Moisés. PhD
Universidad Autónoma de Nuevo León

Arbitration Committee

*GLP, PhD
Centro Universitario de Tijuana, Mexico*

*RECA, PhD
Instituto Tecnológico y de Estudios Superiores de Monterrey, Mexico*

*SDG, PhD
RCY, PhD
Universidad de Guadalajara, Mexico*

*CCB, PhD
OGG, PhD
DMMCH, PhD
Universidad Autónoma Metropolitana, Mexico*

*LTRD, PhD.
FJEV, PhD.
MAFR, MsC.
Universidad de Sonora, Mexico*

*OMMB, PhD
Instituto Nacional de Astrofísica, Óptica y Electrónica-UNAM*

*OHSA, Ph
Centro de Investigación en Energía-UNAM, Mexico*

*RGM, PhD
Universidad Michoacana de San Nicolás de Hidalgo, Mexico*

*MRGI, PhD
Universidad Nacional Autónoma de México, Mexico*

*MMH, PhD.
Colegio Universitario de Distrito Federal, Mexico*

*AKCH, BsC
Universidad Panamericana, Mexico*

*ABUN, MsC
Universidad Politécnica de Puebla, Mexico*

*MTLB, MsC
Tecnológico de Estudios Superiores de Coacalco, Mexico*

*SFD, MsC
Corporativo Universitario México, Mexico*

*MALLH, PhD
Universidad Popular Autónoma del Estado de Puebla, Mexico*

*CSC, PhD
Universidad Politécnica de Tlaxcala, Mexico*

*JCTG, PhD
DAB, PhD
Escuela Superior de Economía-IPN, Mexico*

*ASBP, PhD
Universidad Tecnológica de Nezahualcoyotl, Mexico*

RPR, PhD
Universidad Iberoamericana, Mexico

CCCR, PhD
Universidad Autónoma de Tlaxcala, Mexico

Presentation

ECORFAN Journal-Spain is a research journal that publishes articles in the areas of:

Education, **C**rowdsourcing, **O**peration of Academic Corps, **R**egional Development, **F**iscal, **A**rchitecture and **N**etworks.

In Pro-Research, Teaching and Training of human resources committed to Science. The content of the articles and reviews that appear in each issue are those of the authors and does not necessarily the opinion of the editor in chief.

In the first issue we present *The challenge for universities: Fostering to innovation culture through the promotion of entrepreneurship*, by GONZALEZ-GARCÍA, Guadalupe, BECERRIL, María Luisa, MALDONADO, Patricia and SALGADO-VARGAS, Christian Karel, with affiliation at the Universidad Autónoma del Estado de México, as Second issue we present, *Belief system of students of a quality postgraduate course in educational research*, by MANIG-VALENZUELA, Agustín, VÁLDES-CUERVO, Ángel Alberto, GUTIÉRREZ-DUARTE, Carlos Jesús and MADUEÑO-SERRANO, María Luisa, with ascription in the Instituto Tecnológico de Sonora, as third issue we present, *The journey of the scientific scientists of the Universidad Autónoma de Sinaloa for the recognition of their professional work*, by SOTO-DECUIR, María Guadalupe, MAZO-SANDOVAL, Isabel Cristina and MAZO-SANDOVAL, María Concepción, with secondment at the Autonomous University of Sinaloa, as the last chapter we present *Analysis of the results of public investment applied to federated sports*, by CHAVEZ-TORRES, Rosa del Carmen, PALACIOS-MELÉNDEZ, José Giovanni, CHAVEZ-GONZABAY, Leonardo Augusto and CEDEÑO-PINOARGOTE, Jairo Manuel, with adscription at the Universidad Estatal Península de Santa Elena, as the last chapter we present, *Causes of the disappearance of vernacular housing in Tochimilco, Puebla*, by VÁZQUEZ-TORRES, María del Rayo, CASTILLO-REYES Alberto, Rosendo and NAVARRETE-GARCÍA, Mónica

Content

Article	Page
The challenge for universities: Fostering a innovation culture through the promotion of entrepreneurship GONZALEZ-GARCÍA, Guadalupe, BECERRIL, María Luisa, MALDONADO, Patricia and SALGADO-VARGAS, Christian Karel	1-9
Belief system of students of a quality postgraduate course in educational research MANIG-VALENZUELA, Agustín, VÁLDES-CUERVO, Ángel Alberto, GUTIÉRREZ-DUARTE, Carlos Jesús and MADUEÑO-SERRANO, María Luisa	10-17
The journey of the scientific researchers of the Universidad Autónoma de Sinaloa for the recognition of their professional work SOTO-DECUIR, María Guadalupe, MAZO-SANDOVAL, Isabel Cristina and MAZO-SANDOVAL, María Concepción	18-25
Analysis of the results of public investment applied to federated sport CHAVEZ-TORRES, Rosa del Carmen, PALACIOS-MELÉNDEZ, José Giovanni, CHAVEZ-GONZABAY, Leonardo Augusto and CEDEÑO-PINOARGOTE, Jairo Manuel	26-32
Causes of the disappearance of vernacular housing in Tochimilco, Puebla VÁZQUEZ-TORRES, María del Rayo, CASTILLO-REYES Alberto, Rosendo and NAVARRETE-GARCÍA, Mónica	33-40

Instructions for Authors

Originality Format

Authorization Form

The challenge for universities: Fostering a innovation culture through the promotion of entrepreneurship

El desafío de las universidades: Fomentar la cultura de innovación mediante el impulso al emprendimiento

GONZALEZ-GARCÍA, Guadalupe*†, BECERRIL, María Luisa, MALDONADO, Patricia and SALGADO-VARGAS, Christian Karel

Universidad Autónoma del Estado de México

ID 1° Author: *Guadalupe, Gonzalez-García* / ORC ID: 0000-0002-4119-1187, Researcher ID Thomson: M-4444-2018, arXiv ID: g_gonzalez18, CVU CONACYT-ID: 718167

ID 1° Co-author: *María Luisa, Becerril* / ORC ID: 0000-0003-1301-835X, Researcher ID Thomson: M-3101-2018

ID 2° Co-author: *Patricia, Maldonado* / ORC ID: 0000-0002-7656-190X, Researcher ID Thomson: M-3989-2018, arXiv ID: pamaldonado11

ID 3° Co-author: *Christian Karel, Salgado-Vargas* / ORC ID: 0000-0003-3311-9131, Researcher ID Thomson: M- 4465-2018, CVU CONACYT-ID: 809171

Received January 25, 2018; Accepted June 10, 2018

Abstract

This article discusses the role of universities in the promotion and fostering of innovation culture in the classroom through the development of entrepreneurship issues, promoting initiatives that transform ideas into value-added actions. Through a cross-sectional and descriptive research, this study was carried out with 300 bachelor students in three countries: Mexico, Brazil and Colombia during the years 2016 and 2017, in which the characteristics of these entrepreneurial students were measured, behaviors and attitudes leading to the construction of concrete behaviors were identified. The contributions resulting from this analysis point out the need to promote changes in academic programs that make visible the idea that, in an innovative world, linking knowledge with common objectives is of vital importance. It's highly recommended betting on technological development, creation of patents and new business; as well as taking advantage of the benefits generated by entrepreneurship culture to trigger innovation in university students through awareness programs, together with the practice and implementation of entrepreneurship projects that foster incubation and business ideas allowing the linking of the University with the company.

Entrepreneurship, Innovation, University

Resumen

En este artículo se discute el papel que tienen las universidades en la promoción y fomento de la cultura de la innovación desde las aulas a través del desarrollo de temas de emprendimiento, promoviendo iniciativas que transformen las ideas en acciones de valor agregado. A través de una investigación de tipo transversal y descriptiva, se realizó un estudio con 300 estudiantes universitarios en tres países: México, Brasil y Colombia, durante los años 2016 y 2017 en el que se midieron las características del universitario emprendedor, se identificaron conductas y actitudes que llevan a construir comportamientos concretos. Las aportaciones producto de este análisis, apuntan a la necesidad de promover cambios en los programas académicos que hagan visible la idea de que en un mundo innovador, enlazar conocimientos con objetivos en común es de vital importancia. Es altamente recomendable apostar por el desarrollo tecnológico, creación de patentes y nuevos negocios; aprovechar los beneficios que genera la cultura de emprendimiento para detonar la innovación en los universitarios a través de programas de sensibilización, conjuntamente con la práctica e implementación de proyectos de emprendimiento que permitan fomentar la incubación e ideas de negocios que permitan vincular a la Universidad y a la empresa.

Emprendimiento, Innovación, Universidad

Citación: GONZALEZ-GARCÍA, Guadalupe, BECERRIL, María Luisa, MALDONADO, Patricia and SALGADO-VARGAS, Christian Karel. The challenge for universities: Fostering a innovation culture through the promotion of entrepreneurship. ECORFAN Journal- Spain. 2018, 5-8: 1-9.

* Correspondence to Author (email: guadalupe_ggg@hotmail.com)

† Researcher contributing first author.

Introduction

In today's business environment, innovation has become a necessity since competitiveness to any business goes further than a local effect with a traditional referent in the reality of the current century. It is clear that companies having identified this competitive advantage from the beginning are now reaching their objectives. Nevertheless, many of those that started as a response to the advancement of entrepreneurial development programs, couldn't realize the importance of the promotion of the culture of innovation.

Innovation in a global and national context is a dominant topic in the transformation of educational systems and institutions in order to solve the demands related to globalization. Facing the issue of innovation and especially disruptive innovation in specific is unavoidable since universities for many years were among the main sources of innovation, and many of them turned out to be seriously committed to innovate and transform their operability in teaching activities to deal with business growth. Their integration has given important results such as patents, new products and services, better production processes and technological contributions to the world. However, there are also higher education institutions that still lack programs or processes aimed to reach this objective.

Nonetheless, the challenge is not to change the traditional functions of universities but a question of renewing the way in which these transferred to enterprises; that is, to produce and manage knowledge with commercial value (Cabrales, 2008). The reformulation of the role of universities implies that the organization of teaching centers, academic and administrative processes should be planned and deployed in a way that is consistent with the dimensions and lines of faculties, schools, teaching units, programs and studies in environments and scenarios; such as the identification and resolution of needs and knowledge to improve the commercial and economic fields. In such a way, that innovation should not be considered as a substitute of scientific development but a technological breakthrough contribution emerging from the university and bringing audacity and creativity to scientific knowledge. Herrera, Guerrero & Urbano (2018) discuss the relevance of the participation to the government, universities, entrepreneurs and investors in the evolutionary process in order to transform emerging economies into entrepreneurial societies.

For a reason the configuration of entrepreneurial ecosystems is also promoted, where the contributions of educational institutions are focused on innovation and training in business activities. Until now, technological development has focused on communication matters since the third millennium brought with it the overcoming of access boundaries to global knowledge from technological forms and platforms, thus fostering the perception and configuration of universities. Hence, the so-called third mission or applicable production of knowledge that surpasses the usual functions of teaching and research to promote the training in the perspective of entrepreneurs of territorial projects. An idea that genuinely enables the underpinning of immediate economic and social development (García-Peñalvo, 2016).

It is the authors' interest to discuss, therefore, the promotion and advancement of the culture of innovation from the classroom, which is accordingly related to the evolution of the topic of entrepreneurship. That is, higher education institutions should ensure not only that students learn theoretical or analytical content and develop entrepreneurial processes, but also that a sense of proactivity is fostered in them so that they are able to turn ideas into actions with the benefit of innovative contributions.

On other words, students prepared in an environment of innovation create opportunities through undertaking competitive business ideas, which strengthen a global strategy of application of knowledge in order to improve the life quality of individuals and society in general.

Particularly in many of our Latin American countries, a general disrepute remained for pragmatism, manual labor, materialism and hard work, as Lipset (2018) says. Those behavioral traits prevented the development of modern, rational commercial companies that competed and assumed calculated risks. In addition, this same, as the author says, was there in the past and nowadays in the educational systems that persisted with such practices that hold back innovation.

That is how in this work hereby, we collect information from three public universities in Brazil, Colombia and Mexico that did research on the educational effect of entrepreneurship so that they would be able to suggest some strategies to promote the innovation.

Innovation

For the purposes of this dissertation article on the importance of universities promoting the culture of innovation through the development of entrepreneurs, some of the concepts of analysis such as entrepreneurship and innovation are reviewed below. In this regard, the definition is attracted of innovation of Schumpeter (1911), which referred to the fact that innovation is any "new combination of existing knowledge" and in which therefore non-technological innovation as well as that derived from new or better organizational forms and sources of raw materials or market diversification.

In the conception of the Austrian economist Schumpeter (1939), the entrepreneur can be described as an agent of change in the economic cycle of development, an individual with ideas that combine capital and work, and has something truly innovative, capable of initiative, calculated risk Schumpeter's words that entrepreneurship is innovation have never seemed as appropriate as they are today. Carrying out innovations is the only function that is fundamental in history. He also stressed that it is the entrepreneurial spirit that replaces the Pareto optimum of today with the new different of tomorrow (Sledzik, 2013).

Innovation is a process focused on the creation of new knowledge for the development of commercial solutions (Herkema, 2003). Above all, try to acquire, adopt and share new knowledge that improve products and services in an organization or company. Innovation makes possible the combination of ideas and knowledge in such a way that they bring positive changes to the organization and make it easier to compete in the market by satisfying the demands of the key players.

In order to achieve successful innovation, it is necessary to foresee new combinations of basic productive factors as referred by Chen, Zhaohui and Xie (2004), as well as to develop innovation capacities based on knowledge and application of an effective knowledge management system. Therefore, to carry out the process of innovation consists of carrying out activities based on knowledge that are essential in the creation of capacities for the development of products (Cardinal, Allesandri and Turner, 2001). Certainly, as Herkema (2003) provides, knowledge as a resource as well as its management is a preponderant factor to determine the capacity that organizations have to innovate.

The importance of having an effective knowledge management system is to make better use of its internal resources, but also to use external knowledge in order to improve the level of previously acquired knowledge. The transformation of productive organizations is always linked to innovation processes, since it is what gives value to their consumers and customers, and encourages them to come to try new products. On the other hand, this transformation also has to do with the transfer of research and development results (mainly from higher education institutions) that lead organizations to increase their productivity.

Drucker (1985), always interested in the subjects of entrepreneurship, contemplated innovation and entrepreneurship as practices aimed at an end. The entrepreneur pursues the maximization of opportunities and is not so interested in how to do things, but in how to identify what needs to be done and then apply resources and initiative. Naturally, there are innovations born of ingenuity. However, most result from a deliberate search for innovation opportunities that are found in a few situations. That is the reason why Chiavenato (2010) states that since creativity and innovation allow the company to navigate in perfect harmony in a world in a constant state of transformation, it is necessary to execute the value chain of innovation, which will be more detailed exposed ahead.

Entrepreneurship

In relation to the concept of entrepreneurship, describing its historical evolution would make it extensive, quoting Verin (1982) who refers how from the seventeenth and eighteenth centuries qualified as an entrepreneur to the architect and the master builder. This identified the characteristics of people who undertook the construction of large works to order, such as building and houses. It is associated with the concept of business because it identified as a particular economic activity, which requires prior evaluation on production (its equivalent in money) and that at all times of execution the criteria for evaluating the company are already determined in variables of product and money.

“Emprendimiento o Emprendedurismo”, both words in Spanish as a translation of *Entrepreneurship* which is the way to describe the entrepreneurial spirit and is defined in the Dictionary of the Royal Academy as "the quality of the entrepreneur." The Global Entrepreneurship Monitor (GEM) defines it as any attempt made by individuals to start a new company, including becoming self-employed.

Developing the entrepreneurial spirit is necessary not only for the creation of new companies and therefore new jobs, but also for the sustainability of those that already exist. Entrepreneurship is a process of discovery, evaluation and exploitation of entrepreneurial opportunities that entails starting a new business by offering a product or service to consumers. The entrepreneur, on the other hand, is the person who discovers, evaluates and exploits that opportunity (Shane & Venkataraman, 2000). Consequently, two factors are needed for an entrepreneur to break in: on the one hand the entrepreneurial opportunity and on the other the intention and capacity of the person (Fayolle and Liñán, 2015). In the academic perspective, entrepreneurship has been an area of study for many researchers as for Leite (2015) who affirms that entrepreneurship is not a recipe, but rather a necessity of the market and since the commitment with this market is fundamental, the universities should find the ways to remedy that need.

McGinnis (1987, cited by Gutiérrez, 2011) states that an entrepreneur "believes in innovation and is creative, but with a pragmatic imagination". Chiavenato (2010) confirms, saying that creativity and innovation are not only a matter of talent and opportunity, but that it is doing something different with a logic that must be unraveled.

In this context, small and medium enterprises, usually the result of entrepreneurial efforts, lack sufficient support or financing to obtain new technologies, so that the new entrepreneurs themselves must be alert to the approach of research and development opportunities. Moreover, is that in the context of entrepreneurship, this item is even weaker, since it is also noticeable as a problem to obtain support for the integration of new technologies in newly created companies. Certainly, it has been compensating from the universities (although not at the desired level) with efficient projects of innovative application of knowledge. This leads to the promotion of entrepreneurship with a sense of innovation, so fostering a culture of innovation in universities would make it possible to take better advantage of the opportunities for economic growth for small and medium-sized enterprises, in particular.

Innovation is the specific function of entrepreneurship according to Drucker (1985) either in an existing company, in a public service institution or in a new company started by a single individual in the family environment.

The entrepreneur creates new resources that generate wealth or increases the existing resources with an improved potential to produce wealth by the means. Creating something new is specific to each organization that is undeniable; face the obstacles to innovate, it is not so much. Applying an innovation process is something that entrepreneurs and entrepreneurs require to create the innovation value chain. This is understood as the sequential process of three phases: generation of the idea, its development and dissemination of the concepts created (Hansen and Kirkinshaw, 2008, cited by Chiavenato, 2010).

Innovation processes are what allow companies to assess the state of their innovative capacity, compare it with that of other companies and design plans to increase it. This generic process of innovation initiates the identification of opportunities, followed by the development of concepts and business models, to end with the commercialization and implementation of ideas.

In each of the stages of the process there are filters that are making the number of entrepreneurs or innovative entrepreneurs is reduced. First, the ideas are filtered, and then the concepts generated from them are filtered. In addition, once these are integrated into a business model they have to go through the filter of both financial, technical and commercial feasibility. Once these filters have been overcome, they will only require the integration of a launch so that both commercialization and implementation are carried out properly.

In consequence, the promotion of the culture of innovation also has a significant impact when talking about entrepreneurship since it is clear that the generation of new projects translates into a multiplier effect of the economy, generating new jobs, social development and of course the impact Innovation has to do with facing the challenges and the ability to take advantage of opportunities in the best way and thus ensure that companies overcome the mortality stage and strengthen their ability to compete. It is particularly interesting that despite the fact that entrepreneurship for the creation of new companies has grown in recent years, there is still little innovation that forges companies with greater capacity for growth and competition in such companies resulting from the entrepreneurial process.

At this point, it is recovered that the factors that shape entrepreneurship are very diverse, such as innovation processes, access to technology, opportunities for a larger market, and the existence of a new group of more efficient entrepreneurs, among others. . The above generates recommendations for the future of entrepreneurship as cited by Brenes and Haar (2017) highlighting that the private sector works together with universities and research centers to improve the entrepreneurial culture. In the same order of ideas, it is emphasized that for the continuous improvement in the training processes, crucial for the interaction with the companies, it is about thinking and acting as entrepreneurs within the university (Baaken and Rossano, 2016). To conclude, as stated by Spinelli and Adams (2012) that at the heart of the entrepreneurial process lives the innovative spirit.

Now, organizations clearly do things differently when they come from research and development activities. An innovative environment also pressures companies to seek alternatives for studies and research. In sum, the university is fundamental as an inexhaustible source of knowledge, motivation and reference, thus fostering the process of rapprochement between education and experience. Centella (2016) considers that in a world that is increasingly global but at the same time more tense and with more differentiation, it is important that universities also change substantially. For this, in the fulfillment of the three missions: 1. Teaching or teaching, referred to the transmission of knowledge to obtain an academic degree, 2. Scientific research and preparation of future researchers, referred to cultivate science and teach and 3 Research management and knowledge transfer oriented to transfer their knowledge. Highlighting the latter as the effective contribution to innovation and entrepreneurship.

Definitely, we can not fail to mention that universities that promote an entrepreneurial culture in their programs and promote innovation in their students, therefore generate the opening of new markets, generate industrial and business development, which in turn has an impact on better employment opportunities for college students. In this sense, all actions that can be developed by universities and research centers, teachers and students to promote and develop a culture of innovation with a specific focus on entrepreneurship will benefit the country's development on a large scale.

Methodology and analysis process

To the generation of proposals aimed at promoting innovation in the classroom, we have started from data obtained in a research that measures the characteristics of the university as an entrepreneur. This research was carried out with 300 university students in three countries: Mexico, Brazil and Colombia, during the years 2016 and 2017. Being transversal and descriptive, it identifies behaviors and attitudes that lead to the construction of concrete behaviors. The research is non-experimental because there is no manipulation of variables and only the phenomenon is observed as such in the natural context and later analyzed.

This research has focused on Mexico, Colombia and Brazil, countries with different political and social backgrounds, also with diverse population media, which nevertheless has an educational sector with Higher Education Institutions that common patterns among them, indicating trends that It can point to how innovation can evolve in the region through entrepreneurship driven by university students. If we consider that universities are promoters of innovation and also favorable spaces for the promotion of entrepreneurship, from this study we can determine the similarities that exist among university students in these countries.

For data collection the questionnaire "Características Personales Empresariales de *Management Systems International*" was applied, in order to know the level of entrepreneurial skills required to form a company. It does not necessarily have a value in absolute terms and its effectiveness and impact among the participants is precisely its neutral and depersonalized character. This instrument is composed of 55 statements that evaluate ten characteristics, and the two required for the present article were extracted: A) look for opportunities and G) get information" whose affirmations have to do with the attention to the opportunities that are presented, to the initiative, to innovation, decision making and information achievement.

Derived from the limitations of financial type and time, before the large population of the universities in question, the formula for sample calculation $n = z^2 * p * q / e^2$ was used. Thus, with 95% confidence and a maximum permissible error of 10%, the questionnaire was applied to 100 students of each university without discriminating for its application any specific parameter of age, gender or semester of study. The answers to the questionnaire were carried out in the presence of the interviewers.

The structured questions asked respondents to indicate on a 5-point Likert scale: 1 = Never 2 = Rarely 3 = Sometimes 4 = Usually 5 = Always. Since obtaining an Alpha of Cronbach .864 which gives a fairly good reliability in the results obtained.

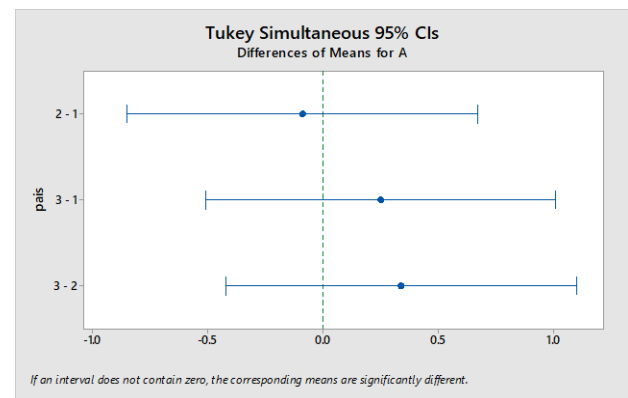
As previously noted, in the process of change to incentivize the innovative behavior of university students, it is important to first determine the characteristics with which they count as entrepreneurs. Campos, Figueroa and Sandoval (2014) run that Aronsson (2004) and Kirby (2004) found empirical evidence that the acquisition of knowledge about entrepreneurship, may be a factor influencing the development of entrepreneurial skills with consequent attention innovation, as Aronsson on the one hand says that entrepreneurship can be encouraged through teaching and secondly, Kirby says that entrepreneurial skills are not only innate but also can be acquired through learning and contribute to innovation as it has been revised from the Schumpeterian theory that introduced the concept of innovation as the basis of a person with entrepreneurial attitudes.

The results show that on average students are at a level of 17 to 19 points on an expected maximum of 25 points in the indicated characteristics (A & G). The Test HSD (difference frankly significant) of Tukey is a test of multiple comparisons, which allows to compare the means of the levels of a factor after having rejected the null hypothesis of equality of means by the ANOVA technique. It is, therefore, a test that tries to specify, a generic alternative hypothesis like that of any ANOVA test. That is, it is based on the distribution of the standardized range, which is the distribution that follows the difference and the minimum of the differences between the sample mean and the population mean of normal variables $N(0, 1)$ independent and identically distributed.

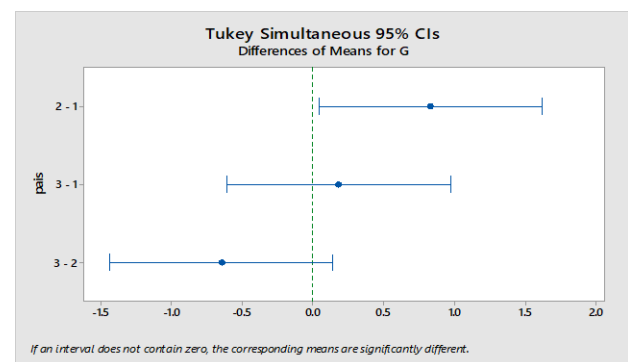
This establishes a threshold, as in other methods, such as the Test and all sample mean differences between the levels of the factor studied are calculated. The differences presented above this threshold were found in significant differences, which were not the same as the non-significant differences.

This means that efforts are required to improve more than 30%. Recommendations in this regard could facilitate that by improving entrepreneurship skills, innovation among university students is encouraged. Means for each country and questions are shown in Graphics 1 and 2.

For Characteristic A) “look for opportunities” Brasil = Colombia; México = Colombia; México = Brasil. Three of them are equal For Characteristic G) “get information” Brasil > Colombia; México = Colombia; México = Brasil. These results allow that the recommendations proposed in terms of fostering a innovation culture through the promotion of entrepreneurship could be considered from any of the three university environments



Graph 1 Characteristic A) “look for opportunities”



Graph 2 Characteristic G) “get information”

Discussion and Conclusions

Based on the research data and the previous statement of reasons, it is necessary to create more technology by giving university students a clearer vision of what is really innovative, not to a specific sector, but with the particularity that it is the difference to be competitive in a globalized world. Likewise, it is highly recommended to bet on it for technological development, creation of patents and new businesses. Promote entrepreneurship with a greater scope.

On the other hand, it is necessary to promote changes at the academic level to facilitate the understanding of university students that in an innovative world, linking knowledge with common objectives is vitally important, closing interdisciplinary gaps. The link with companies must be maintained at all costs. The universities are not at odds with the companies. Hence, it is essential to consider the following:

1. That during the process of business development in the universities it is ensured that students also carry a clear recognition that the commercialization of products and services requires a technological base.
2. That when it comes to culture of innovation, the transfer of knowledge is integrated as part of the sustainable development and the economic environment of the organizations
3. That entrepreneurship also requires a commitment to research and development

Innovation is also a stage in the process of technological change, in which invention and diffusion also intervene. Certainly, innovation characterized by the appearance of technological innovations, although in this sense, innovation is more properly in the commercialization of novelties and diffusion is present in the propagation of innovations. Today, technology is present in what we see, feel, hear, touch and taste. When we wake up, get up, walk, exercise and rest; in breathing and perspiration. We refer to objects, materials, techniques, manufactures, processes, services and products. To implements, tools and machines.

Also to investment technology or that which we consciously communicate, access and interact with information in the virtual field. In particular, Information and Communication Technologies (ICT) transcend everyday habits and routines of interpersonal and social communication (Cáceres, San Román and Brändle, 2009), and are even seen as potentially addictive and risky. Human health in the mental and physiological aspects, manifested in psychological vulnerability and tension, fatigue and discomfort (Echeburúa and Corral, 2018).

It could be taken the benefits generated by the entrepreneurship culture to trigger innovation in university students through awareness programs together with the practice and implementation of entrepreneurship projects that encourage the incubation and development of business ideas to consolidate companies in the future. This is where the transcendence and impact of technology for the support, registration or control of what we do, we are moved, we feel or we are. What is expected is that the technological activity from the universities be considered in a critical and creative perspective, at the same time as inclusive and integral.

That the teaching-learning process, the practicality of educational training, transitions on the basis of experiences and situations that incorporate the objective and competent use of technology; that add the different ways of reasoning, identity and collective action. Thus, students would have to learn to recognize, classify, hierarchize, interpret, discriminate, integrate and combine data, information and knowledge but also to enhance concepts, models and procedures. Clearly, in local, regional, national and international environments.

However, the promising panorama for the education and application of the scientific knowledge characteristic of the universities, starts in the case of public institutions of structural factors in which the State is determining through the formulation of its public policies. It is therefore a scenario that contrasts with the knowledge management of public universities and the greatness of knowledge applicable to entrepreneurial projects, training of qualified professionals and common development. It is worth noting that the most innovative universities in Europe stand out for their advances in science, innovation of new technologies and promotion of markets and industries (Ewalt, 2018).

The mission of the university in the second decade of the third millennium resides, therefore, in keeping up with the challenges presented by the social environment as a whole and for this the collaborative work between universities and business and government entities is fundamental. Just as universities affect the professional training of their students to be incorporated into the labor market, today the process of acquiring knowledge and skills must be done with the benefit of promoting innovation and entrepreneurship as a goal of sustainable regional development.

And when we speak of a regional conception, we do it at a Latin American scale since, as we have already said, our region shares structural and organizational similarities that can be seen by the universities and their instances, a way of supporting economic growth of the countries that make up Latin America. The work is not simple but once we find ourselves on the path of the future we can only continue in the management of knowledge.

References

- Baaken, T. y Rossano S. (2016). *Academic entrepreneurship: a science-to-business marketing prospective*. Knowledge and technology transfer in México and Germany. (pp. 99-115) México-Alemania:UAEH.
- Brenes E. R. y Harr J. (2017). *El futuro del emprendimiento en Latinoamérica*. México: Cengage Learning.
- Cabrales M, F. (2008). Innovación universitaria. *Ingeniare. Revista chilena de ingeniería*, 16(2), 280-281. <https://dx.doi.org/10.4067/S0718-33052008000200001>
- Caceres, M. D., Ruiz, J. A., y Brändle, G. (2009). Comunicación interpersonal y vida cotidiana. La presentación de la identidad de los jóvenes en Internet. *Cuadernos de Información y Comunicación*, 14, 213-231. Universidad Complutense de Madrid. Recuperado de: <http://www.redalyc.org/pdf/935/93512977013.pdf>
- Campos, R. E., Figueroa N. G., y Sandoval, M.E. (2014). Medición de las habilidades emprendedoras: base para mejorar el programa de desarrollo emprendedor. *Memorias XV Congreso Internacional sobre Innovaciones en docencia e investigación en Ciencias Económico Administrativas* Zacatecas: México. www.fca.uach.mx/apcam/2014/04/.../Ponencia%20147-UPZacatecas/recuperado11/02/2016
- Cardinal L.B., Allesandri T.M. y Turner S.F.(2001). Knowledge codifiability, resources, and science based innovation. *Journal of Knowledge Management*, Vol. 5, No. 2, 2001, pp. 195-204.
- Centella, V. (2016). Emprendimiento e Innovación. *El Tecnológico*, 26(1), 8-9. Recuperado de <http://revistas.utp.ac.pa/index.php/el-tecnologico/article/view/375>
- Chen J., Zhaohui Z. y Xie H.Y. (2004). Measuring intellectual capital: a new model and empirical study. *Journal of Intellectual Capital*, Vol. 5, No. 1, 2004, pp. 195-212.
- Chiavenato, I. (2010). *Innovaciones de la Administración. Tendencias y estrategias los nuevos paradigmas*. 5a ed. México: McGraw-Hill.
- Consejo Nacional de Ciencia y Tecnología (CONACYT). Consultado 25 de noviembre de 2017 en <http://conacytprensa.mx/index.php/sociedad/politica-cientifica/4467-apostarle-a-la-innovacion-tecnologica-el-reto-del-emprendimiento-en-mexico>.
- Drucker, P. F. (1985). *La innovación y el empresario innovador. La práctica y los principios*. Barcelona: Edhasa.
- Echeburúa, E. y De Corral, P. (2010). Adicción a las nuevas tecnologías y a las redes sociales en jóvenes: un nuevo reto. *Adicciones*, 22(2), 91-95. Facultad de Psicología. Universidad del País Vasco. Recuperado de: <http://www.redalyc.org/html/2891/289122889001/>
- Ewalt, D. (2018). Reuters Top 100: Europe's Most Innovative Universities 2018. Recuperado de: <https://www.reuters.com/article/us-emea-reuters-ranking-innovative-unive/europes-most-innovative-universities-2018-idUSKBN1HW0B4Plan> Nacional de Desarrollo. Recuperado de: <http://pnd.gob.mx/wp-content/uploads/2013/05/PND.pdf>
- Fayolle, A. y Liñán, F. (2015). The future of research on entrepreneurial intentions. *Journal of Business Research*, Vol. 67, Num. 5, pp. 663-666.
- García-Peñalvo, F. (2016). *La tercera dimensión*. 17(1), 7-18. Universidad de Salamanca, España. Recuperado de: <http://revistas.usal.es/index.php/revistatesi/article/view/eks2016171718/14803>
- GEM *Global Entrepreneurship and Development Institute*. <https://thegedi.org/global-entrepreneurship-and-development-index/recuperado> el 30 de marzo de 2016
- Gutiérrez M., G. (2011). Educación emprendedora en la universidad: Educando para el futuro. *RETOS. Revista de Ciencias de la Administración y Economía*, 1 (2), 49-68.
- Herkema, S. (2003). A complex adaptive perspective on learning within innovation projects, *The Learning Organization*, Vol. 10, No. 6, 2003, pp. 340-346.

Herrera, F., Guerrero, M., & Urbano, D. (2018). Entrepreneurship and Innovation Ecosystem's Drivers: The Role of Higher Education Organizations. *In Entrepreneurial, Innovative and Sustainable Ecosystems* (pp. 109-128). Springer, Cham.

Leite, E. (2015). *Empreendedorismo, inovação e incubação de empresas e startups. Lei de inovação*. Recife: BAGAÇO.

Lipset, S. M. (2018). Values, education, and entrepreneurship. *In Promise of Development* (pp. 39-75). Routledge

Schumpeter, J. A. (1911). *Theorie der wirtschaftlichen Entwicklung*, Leipzig: Duncker & Humboldt. Edición en castellano (1944): México: Fondo de Cultura Económica.

Schumpeter, J. A.. (1939). *Business Cycles*. New York: McGraw Hill

Shane, S., & Venkataraman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *The Academy of Management Review*, 25(1), 217-226. Retrieved from <http://www.jstor.org/stable/259271>

Sledzik, K. (2013). *Schumpeter's View on Innovation and Entrepreneurship*. SSRN Electronic Journal. 10.2139/ssrn.2257783.

Spinelli, S. Jr. & Adams, R. (2012). *New Venture Creation. Entrepreneurship for the 21st Century*. 9 ed. New York: Mc Graw-Hill Irwin

Belief system of students of a quality postgraduate course in educational research**Sistema de creencias de los estudiantes de un curso de posgrado de calidad en investigación educativa**

MANIG-VALENZUELA, Agustín†*, VÁLDES-CUERVO, Ángel Alberto, GUTIÉRREZ-DUARTE, Carlos Jesús and MADUEÑO-SERRANO, María Luisa

Instituto Tecnológico de Sonora

ID 1° Author: Agustín, Manig-Valenzuela / ORC ID: 0000-0003-2109-2920, CVU CONACYT-ID: 325854

ID 1° Co-author: Ángel Alberto, Váldez-Cuervo / ORC ID: 0000-0001-6559-4151, CVU CONACYT-ID: 94114

ID 2° Co-author: Carlos Jesús, Gutiérrez-Duarte / ORC ID: 0000-0002-9271-083X

ID 3° Co-author: María Luisa, Madueño-Serrano / ORC ID: 0000-0002-9571-3526

Received January 25, 2018; Accepted June 12, 2018

Abstract

The present study aimed to characterize the belief system of master's degree students about educational research. The approach of the problem points out how students with little experience in educational research have serious difficulties in their formative process when their foundations are not clear. The present investigation obeys to the qualitative method. The non-statistical sample of intentional character was formed by 15 participants of a postgraduate course oriented towards the training of researchers with registration in the National Quality Postgraduate Program (PNPC). The results define the belief system of students in the following theoretical categories: a) Category research paradigms, b) Category Educational Research. The conclusions reveal that the research paradigms represent for the students a set of beliefs that help them to understand or explain the reality in which the object of study is immersed and that each paradigm has a different perspective on the reality that is studied from the educational investigation. Under this perspective, educational research has the purpose of creating new programs and new interventions that make it possible to improve the education sector.

Educational Research, Paradigms, Researchers education

Resumen

El presente estudio se propuso caracterizar el sistema de creencias de los estudiantes de un posgrado en educación sobre la investigación educativa. El planteamiento del problema señala cómo los estudiantes con poca experiencia en investigación educativa tienen serias dificultades en su proceso formativo cuando no tienen claros sus fundamentos. La presente investigación obedece al método cualitativo. La muestra no estadística de carácter intencional se conformó por 15 participantes de un posgrado que se orienta hacia la formación de investigadores con registro en el Programa Nacional de Posgrados de Calidad (PNPC). Los resultados definen el sistema de creencias de los estudiantes en las siguientes categorías teóricas: a) Categoría paradigmas de investigación, b) Categoría Investigación Educativa. Las conclusiones revelan que los paradigmas de investigación representan para los estudiantes un conjunto de creencias que ayudan a comprender o explicar la realidad en la que se encuentra inmerso el objeto de estudio y que cada paradigma tiene una perspectiva distinta sobre la realidad que se estudia desde la investigación educativa. Bajo esta perspectiva, la investigación educativa tiene como propósito la creación de nuevos programas y nuevas intervenciones que posibiliten mejorar el sector educativo.

Investigación Educativa, Paradigmas, Formación de Investigadores

Citación: MANIG-VALENZUELA, Agustín, VÁLDES-CUERVO, Ángel Alberto, GUTIÉRREZ-DUARTE, Carlos Jesús and MADUEÑO-SERRANO, María Luisa. Belief system of students of a quality postgraduate course in educational research. ECORFAN Journal- Spain. 2018, 5-8: 10-17.

* Correspondence to Author (email: agustin.manig@itson.edu.mx)

† Researcher contributing first author.

Introduction

The concern for the training of researchers in quality programs at the graduate level is constant in recent years in Latin American countries (Luchilo, 2010). A quality postgraduate course ensures the continuity of scientific production within higher education institutions (HEIs), strengthening of their research groups, development of knowledge generation lines and their application towards the solution of socially relevant problems (Fresán, 2013).

In Mexico, educational policies have not achieved the integration of the different institutions to improve the growth of the scientific area and researchers (Gómez-López, 2013). During the period from 2010 to 2016 the number of researchers registered in the National System of Researchers (SNI) increased from 16,598 to 25,072, a growth that is encouraging, although it is far from countries such as Brazil, which has 86,932 researchers, and the United States, which hosts 1,393,523 (Rodríguez, 2016). The number of researchers remains poor to achieve a significant change in the transformation of the country. This represents a not very encouraging reality for the development of science in Mexico, which is necessary to analyze in order to find the areas of opportunity that allow quality postgraduate programs to boost it in the training of researchers to improve the world ranking in terms of its scientific production.

In Mexico, the National Council of Science and Technology (CONACyT) through the National Quality Postgraduate Program (PNPC) is responsible for human resources related to science. The PNPC evaluates the quality of postgraduate programs and awards recognition to programs that meet their quality and relevance standards (González, Gómez, Martinell, & Frenk, 2014). The PNPC has registered in its register 1,742 quality programs, equivalent to 25% of the total postgraduate offer nationwide (Torres, 2015).

Admission and permanence in the PNPC, according to the study by González (2013), are largely defined by the terminal efficiency per cohort. This is an indicator that holds a significant weight to assess quality. The terminal efficiency is defined by the time elapsed to obtain the degree once the student has been admitted.

If a program wants to be recognized in the Consolidated Postgraduate Register (at the national level) the terminal efficiency must be specified up to three years for the master's level, with a parameter in which the average graduation time must be equal to or greater than 50 %, although this efficiency must be increased to 70% after two years of obtaining the registration in the PNPC. For the Postgraduate Certificate of International Competence, the lapse is two and a half years for the graduation and it is required that this terminal efficiency is 70% in average time (Urrego, 2011).

Among the main deficiencies detected by Martínez (2015) in six academic programs of the National Polytechnic Institute, registered in the PNAC of CONACyT, that affect the terminal efficiency is the lack of a methodology or advice for the preparation of thesis and the low participation of the students in the research projects. For Mireles (2016) the research is learned through the commitment that a graduate student puts into the realization of his thesis in collaboration with a research group. In such way, one of the important challenges for postgraduate courses of the PNPC is limited to generating significant learning experiences so that their students complete their thesis in a timely manner.

A scientific research carried out with quality must be reflected with the publication of an article in a prestigious magazine. That is, the article is an inseparable part of the investigation. Scientific articles are regularly requested structured for publication according to Murillo, Martínez-Garrido and Belavi (2017) in the format called IMRyC, on which I means introduction, where the question "What is studied?" Must be answered. M method, which responds to, how is the research problem studied? R of results that responds to, what were the findings? and, C of conclusions that respond to, what do the results mean and what do they contribute to the state of knowledge on the subject studied? In this way, professional training must make an effort to integrate research within its contents or methodologies.

That is, reinforce the issues with the development of research skills, which means that future professionals must apply the methodological tools of research in their usual content, not only through a specific subject of the program, but through the continuous work in the different subjects (Perines & Murillo, 2017). In the field of scientific research there are different positions on the nature of the problems and the methods to study them (Taylor and Bogdan, 1987).

The paradigms according to Kuhn (1971) are defined as "universally recognized scientific achievements that, for a certain time, provide models of problems and solutions to a scientific community" (p.13). The problem arises at the moment in which the students of a postgraduate program are not clarified, the paradigm of scientific research that dictates the design and development of their research projects with legitimacy and truthfulness (Briones, 2013).

A research paradigm is made up of different levels of understanding that provide the theoretical basis for a scientific study. The first level is the ontological one that defines the way of seeing and understanding reality. The second is represented by the epistemological level that provides a coherent position on how to know the ontologically defined reality. The last level is the methodological one that provides the technical guidelines based on the onto-epistemic criteria that allow the production or re-production of knowledge. That is why the researcher, by understanding the three levels that make up a paradigm, establishes the form of design, implementation and concretion of his research project in consonance with the foundations provided by the paradigm in which it is developed (Sánchez, 2013).

In the social sciences and humanities, according to Gil-Álvarez, León-González and Morales-Cruz (2017), there are three recognized paradigms for scientific production: positivist, interpretative and socio-critical. The positivist paradigm arises in the field of natural sciences, as a product of the empiricist approach, which is distinguished by the objective analysis of reality. The interpretive paradigm implies the understanding of reality from the perspective of the individual who lives and experiences it; it is derived from the social sciences and is of the phenomenological, subjective and functionalist type. The sociocritical paradigm, sustains that intervention and study on local practice, is carried out through processes of self-reflection that generate changes and transformations of the actors at a social and educational level.

Barraza (2014) states that positivists traditionally convey the idea that quantitative research is the one with the highest validity and quality. However, Neuser (2014) considers that the interpretive paradigm through qualitative research promotes a profound change in the study of human and social sciences in the last century. In this sense, educational research is a rigorous process that has as its starting point any of the paradigms marked in science.

This should be made concrete through a quantitative, qualitative or mixed methodological process aimed at improving education and with this to society in general (Murillo & Hidalgo, 2017). Research at the level of higher education proposes concrete ways of working on projects with the necessary elements of quality for their design and development.

The novice researcher to realize that the process of knowledge construction is not a neutral process. That is, making aware that the production of knowledge is made as a representation of their own reality and vision of the world. When venturing into research this vision is confronted by the current paradigms belonging to the scientific perspective of what reality is. For Cedeño-Suarez (2001) the paradigm chosen by the researcher will be the one that conditions the theoretical premises that are fixed in the research, the type of problem chosen, the strategies, techniques and instruments and the criteria of validation and legitimation of the knowledge that is produces.

The novel researcher encounters a series of problems when starting his research project. These are circumscribed by the belief system supported by the characteristics of the research paradigms, which can produce confusions in the learner. In this sense, a student may present difficulties in understanding research paradigms at their ontological level. This has a negative impact on the training of researchers given that students regularly do not have clarity about the theoretical foundations of the research paradigm from which they start (Neuser, 2014). Thus, students experience theoretical confusion in the argumentation of their thesis document and manifest difficulties in defending it once it is finished.

The construction of scientific knowledge is subject to the belief system of the research paradigm in which it is produced. This belief system dictates models of problems and solutions that are approached according to the method, techniques and instruments of data collection and analysis, as well as the type of validation, quality criteria and ethics that entails a research paradigm (Cedeño-Suarez, 2001). In this sense, the researcher in training has the task of reflecting on the belief system about educational research. Accordingly, the following research question is asked: What is the belief system that graduate students share about educational research?

Method

The present qualitative research was developed under the focus of symbolic interactionism. The design was based on the exploration process proposed by Blumer (1982), which involves an open collection of beliefs and meanings through a flexible procedure. The criteria of quality and scientific rigor applied were reliability in terms of consistency and credibility as a criterion of internal validity (Sandín, 2003).

Participants

The selection of participants was based on the criteria sampling procedure. Students who attended the second year of a postgraduate education aimed at training researchers from a Northwestern University of Mexico with registration in the PNPC and who voluntarily agreed to participate in the present investigation were included. The sample was formed by a total of 15 students (9 men and 6 women).

Information gathering technique

To obtain the information, we used the semi-structured interview technique of a focused type (Vela, 2004). This type of interview was guided by the following criteria:

- a. Range and specificity, which refer to the description made by the participant according to the questions that were asked about the paradigms of research and educational research.
- b. Depth and personal context, these are related to the beliefs collected about the experiences of the participants on the educative research.

Systematization and analysis of data

The systematization and information analysis procedure is based on Manig's proposal (2014), which is conformed by the following stages:

1. Systematization, signaling and codification of the data.
2. Analysis of coded units and graphic construction of theoretical categories.
3. Qualitative interpretation and description of the theoretical categories.

Stage 1. Systematization, signaling and coding of data

This first stage consists of the following procedures:

- a. Control of informants, the informant control procedure was performed by assigning a password to each teacher for identification.
- b. Transcription of interviews, once the interviews were recorded they were transcribed in order to obtain the data source to carry out the corresponding analysis.
- c. Signaling and coding of the units of analysis, this is a first level of analysis. The signaling procedure was performed by assigning a color to each unit of analysis for identification.

Stage 2. Graphic construction of the theoretical categories

In the second stage, the theoretical categories were named and grouped according to the intersubjectivity identified as a product of the second level of analysis. The intersubjectivity, according to Bonilla-Castro and Rodríguez (2005), is the result of the social construction of reality that represents the way it works daily. The researcher relied on this stage using Freemind software in order to graph the theoretical categories from the different units of analysis.

The next step was to group the units of significant analysis, which are those that are related to the units of meaning defined as theoretical categories in order to characterize and describe these categories. Therefore, intersubjectivity has the function of naming the theoretical categories, since these make possible the objective representation of units of analysis in units of meaning according to what postgraduate students attribute to educational research. Also, what is significant will allow the researcher to describe the characteristics that distinguish each of the resulting theoretical categories, respecting in their description the social construction of the students on educational research.

Stage 3. Qualitative interpretation of the theoretical categories

The qualitative interpretation of the theoretical categories is considered as a moment of scientific experience that allows to generate knowledge according to the results obtained by the researcher (Bentolila, 2000).

MANIG-VALENZUELA, Agustín, VÁLDES-CUERVO, Ángel Alberto, GUTIÉRREZ-DUARTE, Carlos Jesús and MADUEÑO-SERRANO, María Luisa. Belief system of students of a quality postgraduate course in educational research. ECORFAN Journal-Spain. 2018

In this sense, from the interpretation of the graphic organizer that organizes the theoretical categories into units of analysis that account for intersubjectivity and units of analysis that account for the significant, educational research is defined and characterized according to the voices of the participants. The description of each category is accompanied by the evidence composed by the units of analysis interpreted until reaching a specific graphic organizer using the tool CmapTools where the study findings are defined to finally present the conclusions of the study.

Results

The results of the study are presented through a categorization of theoretical type according to Ruiz-Olabuenaga (2003). Which are guided by the principle of fidelity of the register to reproduce the expressions of the participants with accuracy by coding the units of analysis obtained (Corbetta, 2007). The results obtained include the possibility of identifying the belief system shared by postgraduate students in their training as researchers according to the following categories: a) Category of research paradigms, b) Category of Educational Research. Which are described below.

Category Research Paradigms

The research paradigms according to the graduate students are a set of beliefs and ideas that provide a scientific community with the methodology for the study of reality. In this sense, the selected paradigm provides a series of strategies, methods and instruments for the realization of scientific work. As it could be observed in the following units of analysis:

"I consider that it is a set of beliefs, work styles, strategies, that a scientific community uses or follows to carry out its work, so I would define it as well as a style of beliefs, strategies to approach the different works that are presented "(14CP73). "The paradigm is the set of ideas or beliefs that will guide you to interpret reality" (1CP2). "What do you believe, where do you see that reality, what do you identify with, what do you feel is that reality... what that reality means to you" (10CP57). "Reality, objective reality or multiple realities, also instruments, methods and ways of life" (12CP64). "What comes to mind, beliefs, perceptions of people, what comes to mind is also method, methodologies, how to work, how to approach" (14CP72).

According to the graduate students he paradigms provides a vision on how to perform the analysis of the information obtained from the interaction with people in the field of study. In such a way that the paradigm places you in the way you should follow the methodology through a series of rules and regulations applicable to the research process. This is evident in the following units of analysis:

"The scientific paradigms give us a vision of how to analyze the information of what we are going to obtain from the field or from the people with whom we interact "(11SI66)."The paradigm is a model in which a group of experts from the scientific community agree to use and in turn use certain rules and certain rules that are applicable in the research process" (2SI10). "The paradigms place you in your way in which you are going to follow your methodology and your ideas" (1SI5).

Graduate students classify paradigms as a quantitative paradigm and a qualitative paradigm, recognizing both scientific rigor in the application of their methodology. For students, the object of study under the qualitative paradigm seeks to understand and in the quantitative paradigm determine its magnitude. In such a way, that the qualitative paradigm is associated with an interpretive process of reality, while the quantitative paradigm is associated with the rational explanation of it. The above can be observed in the following units of analysis:

" The paradigms that have been qualitative and quantitative, both have their scientific rigor to carry out the methodologies "(5CP25)" In a way we take a qualitative paradigm, to understand, understand, appreciate and on the other hand the quantitative paradigm makes us be a bit more deterministic "(2CP7)" They have both their specific work, in this case a quantitative paradigm indicates the magnitude of a certain educational phenomenon and in the qualitative paradigm they inquire more about the reasons "(6CP29)" It is the most that nothing to see how you are going to associate that information, how are you going to interpret it, how are you going to see reality and how are you going to take all this and you are going to explain it, either in the qualitative or quantitative paradigm "(11CP61).

Consequently, according to the students the research paradigms represent a guide defined by beliefs belonging to a scientific community that guide the research process according to a vision of reality, either qualitatively or quantitatively. As shown in Figure 1.

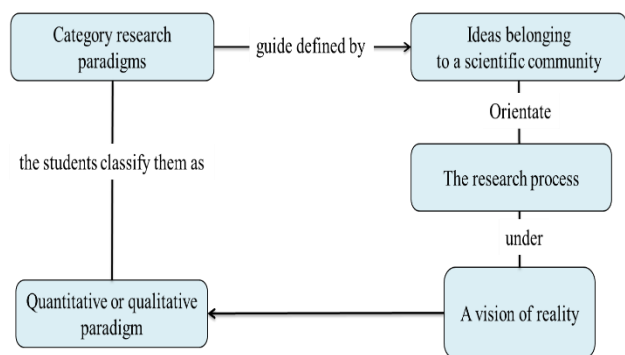


Figure 1 Research paradigm according to graduate students
 Source: Self Made

Category Educational research

Graduate students recognize the importance of educational research in the identification of problems that arise in certain educational contexts. For students to know the problem is the secret ingredient of educational research. In this orientation, researchers are dedicated to finding and solving educational problems that affect the daily lives of students and / or students within the school environment. As represented in the following units of analysis:

"I think that educational research is something important because based on research you can realize the problems that arise within this area of education in the context that is presented "(14SI88). "It is knowing problems, knowing phenomena and being able to work on it, it is like discovering, educational research is like a secret ingredient for research" (8CP45). "The researcher is dedicated to look for situations or phenomena that occur in real or daily life and look for problems" (2CP6). "The educational research can be the one that is focused on teachers, on students, is what they participate in education. Well, seek more than anything to solve the educational problems that are currently being presented "(15SI94)." Inquiring about problems within the educational field "(5SI30).

Educational research according to the beliefs of graduate students is focused on the participation of teachers and students in order to provide solutions through the development of new programs and forms of intervention. This implies, keep updated and deepen in increasingly specific topics. This is evidenced by the following units of analysis:

" To be a researcher is to contribute to a scientific area in which we can conduct new and updated research in which we can inquire about a specific topic that promotes a solution to a problem of society "(5SI29)" Educational research is a contribution that can help to generate new programs, new interventions and that can be seen in a different way the appropriate solution "(1SI4)." Research always involves being updated in your information and delving into a specific issue "(12SI77). Students consider that educational research is not just about sitting down and doing something; rather it is to use thinking skills such as analysis and logical reasoning in order to make proposals that support solving current needs. This is seen as evidence of the student's academic achievement. In this sense, educational research in a postgraduate program requires a greater effort than in the Bachelor's degree. Which can be observed in the following units of analysis:

" Research is not just sitting and doing it, but analyzing, reasoning "(5SI35)." It is another way in which I can help programs, research, to the needs that are being lived in the present, they affect in some way the academic achievement of students "(12SI78)." Educational research for me means finding areas for improvement, pointing them out and providing information on how to exploit them "(6SI36)." Educational research demands a lot, it demands from you what it's being a bachelor's degree, it's been a PNPC, it's not just a master's degree, it's an extra to be here "(11SI76). In sum, educational research according to students is a way to address the current problems that arise in school contexts. Educational research is an effort to update students and teachers aimed at developing proposals as alternatives to the educational needs. Likewise, it entails a greater degree of complexity in graduate studies than in undergraduate studies.

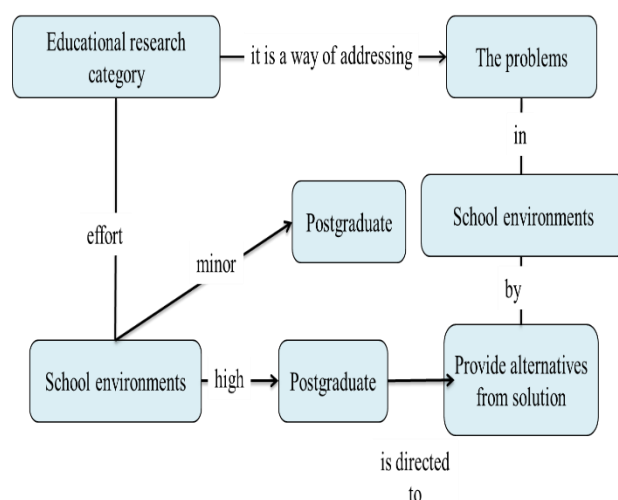


Figure 2. Educational research according to graduate students.
 Source: Self Made

The resulting categories represent the belief system that students share in their educational context and that support their decision-making regarding their educational process. In this sense, the conclusions of the study are presented below.

Conclusions

The students affirm that the paradigms focused on education are the set of beliefs that them to understand or explain the reality in which the object of study is immersed. For Zor (2011) the beliefs allow to mold and modify reality. Therefore, reality is only a mirror of the true, which at the same time is configured in a belief system that is part of the daily life of the people.

The paradigms, according to the students are defined from the methodological point of view as quantitative or qualitative. Although each paradigm has a different perspective on reality, the knowledge and the research work carried out under both approaches offer a broader perspective on the object of study.

Educational research has a defined purpose oriented to education, this according to the students opens the way to various ideas and formative conceptions. In this sense, Sanabria (2010) indicates that educational research works under a defined objective aimed at describing, interpreting or, where appropriate, measuring or interpreting a reality in a given educational context. Educational research represents a contribution to the scientific community. The students mention that it helps to the creation of new programs, new interventions that allow the improvement in the educational sector. Therefore, it is finally concluded that research represents a cornerstone in science, since from it emanate theories, models, methodologies and processes that help to develop contributions as alternative solutions to solve current problems that afflict education.

Acknowledgement

Publication financed with PFCE 2017 resources. Also, the Program of Promotion and Support to Research Projects (PROFAPI) of the Technological Institute of Sonora is thanked for the resource granted.

References

Barraza, M. A. (2014). *Posicionamientos epistemológicos desde una perspectiva doctoral*. México: Universidad Pedagógica de Durango.

Bentolila, H. (2000). Conocimiento científico e interpretación. Una investigación sobre la estructura hermenéutica de la experiencia. *Comunicaciones Científicas y Tecnológicas 2000*. Recuperado de http://www.unne.edu.ar/Web/cyt/cyt/2000/2_humanisticas/h_pdf/h_031.pdf

Blumer, H. (1982). *El Interaccionismo simbólico, perspectiva y método*. Barcelona: Hora.

Briones, R. (2013). Nudos para la formación de investigadores en educación. Una posible propuesta *Argonautas*, (3), 74 – 90. Recuperado de <http://www.argonautas.unsl.edu.ar/files/6%20ARAYA%20BRIONES%20R.pdf>

Bonilla-Castro, E. & Rodríguez, P. (2005). *Más allá del dilema de los métodos. La investigación en ciencias sociales* (3^{era} rd.). Bogotá: Norma.

Cedeño-Suárez, M. (2001). Aportes de la investigación cualitativa y sus alcances en el ámbito educativo. *Actualidades Investigativa en Educación*, 1(1), 1-23.

Colina-Escalante, A. (2011). El crecimiento del campo de la investigación educativa en México. Un análisis a través de sus agentes. *Perfiles educativos*, 33(132), 8-26. Recuperado de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982011000200002&lng=es&tlng=es.

Fresán, M. (2013). *Acreditación del posgrado Institucionalización e impacto en Argentina y México*. México: ANUIES, UAM.

Gil-Álvarez, J. L., León-González, J. L., & Morales-Cruz, M. (2017). Los paradigmas de investigación educativa, desde una perspectiva crítica. *Revista Conrado*, 13(58), 72-74. Recuperado de <http://conrado.ucf.edu.cu/index.php/conrado>

González, A. L. M., Gómez, E. O., Martinell, A. R., & Frenk, G. A. (2014). Los posgrados del Instituto de Investigaciones en Educación. *Revista CPU-e*, 3, 37-56. Recuperado de <http://www.redalyc.org/pdf/2831/283132980003.pdf>

González, G. (Julio, 2013). Hacia la autorregulación de los actores de los programas de posgrado: una propuesta metodológica en el marco de la acreditación en CONACyT. *Educação em Foco*, 16(21), 179-204.

- Gómez-López, A. (2013). *Una mirada analítica sobre la formación de investigadores en México y el crecimiento del campo de la investigación educativa*. Pachuca: Universidad Autónoma del Estado de Hidalgo. Recuperado de <https://www.uaeh.edu.mx/scige/boletin/icshu/n3/e1.html>
- Kuhn, T. (1971). *La estructura de las revoluciones científicas*. México: Fondo de Cultura Económica
- Luchilo, A. (2010). *Formación de posgrado en América Latina*. Buenos Aires: Eudeba.
- Manig, A. (2014). *Los significados que los Estudiantes le atribuyen a la realidad educativa del servicio social universitario* (Tesis Doctoral). Universidad Iberoamericana Puebla.
- Martínez, C. (2015). *Resultados obtenidos por 6 programas Académicos del IPN en el padrón Nacional de Posgrado del CONACYT en su ingreso en 2009 y primera evaluación en 2012*. Estudio comparativo (Tesis de maestría). Instituto Politécnico Nacional. México, D. F.
- Mireles, O. (2016). Revisión histórica de un modelo de excelencia: el posgrado en Ciencias Biomédicas. *Perspectivas Docentes*, (30), 52-61. Recuperado de <http://revistas.ujat.mx/index.php/perspectivas/article/view/1293>
- Murillo, J., & Hidalgo, N. (2017). Hacia una investigación socialmente comprometida. *Revista Iberoamericana de Evaluación Educativa*, 10(2), 5-8. Recuperado de https://repositorio.uam.es/bitstream/handle/10486/679927/RIIE_10_2_1.pdf?seq
- Murillo, F. J., Martínez-Garrido, C., & Belavi, G. (2017). Sugerencias para Escribir un Buen Artículo Científico en Educación. *REICE. Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación*, 15(3), 5-34. <https://doi.org/10.15366/reice2017.15.3.001>
- Neuser, H. (2014). Problemática de los métodos cualitativos de investigación en el campo socio-pedagógico. *Paideia*, 55, 71-96
- Perines, H., & Murillo, J. (2017) ¿Cómo mejorar la investigación educativa? Sugerencias de los docentes. *Revista de la Educación Superior*, 46(181), 89-104. Recuperado de <https://www.sciencedirect.com/science/article/pii/S0185276017300055>
- Rodríguez, C. (2016). *El sistema nacional de investigadores en números*. México, D. F.: Foro consultivo científico y tecnológico A. C. Recuperado de http://www.foroconsultivo.org.mx/libros_editados/SNI_en_numeros.pdf
- Ruiz-Olabuénaga, J. (2003). *Metodología de la Investigación Cualitativa*. Bilbao: Universidad de Deusto.
- Sanabria, M. (2010) La investigación educativa en la formación integral del futuro educador. Facultad de Ciencias de la Educación. *Revista Ciencias de la Educación*, 20(36). Recuperado de <http://servicio.bc.uc.edu.ve/educacion/revista/n36/art10.pdf>
- Sánchez, J. (2013). Paradigmas de investigación educativa: de las leyes subyacentes a la modernidad reflexiva. *Entelequia, Revista Interdisciplinaria*, 16(1), 91-103.
- Sandín, M. (2003). *La investigación cualitativa en educación. Fundamentos y tradiciones*. Madrid: McGraw-Hill.
- Taylor, S. y Bogdan, R. (1987). *Introducción a los métodos cualitativos en investigación*. Barcelona: Paidós Básica.
- Torres, S. A. (2015). Prácticas académicas de profesores de posgrado en el contexto de la era Internet. Estudio de caso: Doctorados Consolidados del PNPC de CONACYT. *RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, 5(10), 85-115.
- Urrego, F. L. (2011). *Perspectivas de la maestría en ciencias en metodología de la ciencia, en el marco de los criterios institucionales y nacionales del posgrado*. (Tesis de maestría). Instituto Politécnico Nacional México, D. F.
- Vela, F. (2004). Un acto metodológico básico de la investigación social: La entrevista cualitativa. En M. Tarres (Coord.). *Observar, escuchar y comprender. Sobre la tradición cualitativa en la investigación social*. México: Porrúa/El Colegio de México/FLACSO.
- Zor, J. (2011). *Valores y creencias desde la programación neurolingüística P.N.L.* Madrid, España: Sociedad Hispanoamericana de Psicología aplicada. Recuperado de <http://webs.ono.com/zor/creencias.pdf>

The journey of the scientific researchers of the Universidad Autónoma de Sinaloa for the recognition of their professional work

El recorrido de los investigadores científicos de la Universidad Autónoma de Sinaloa por el reconocimiento de su trabajo profesional

SOTO-DECUIR, María Guadalupe†*, MAZO-SANDOVAL, Isabel Cristina and MAZO-SANDOVAL, María Concepción

Universidad Autónoma de Sinaloa, Facultad de Ciencias de la Educación

ID 1° Author: *María Guadalupe, Soto-Decuir* / ORC ID: 0000-0003-1543-6213

ID 1° Co-author: *Isabel Cristina, Mazo-Sandoval* / ORC ID: 0000-0002-8275-568X

ID 2° Co-author: *María Concepción, Mazo-Sandoval* / ORC ID: 0000-0002-6626-7811

Received March 25, 2018; Accepted May 30, 2018

Abstract

Being part of the National System of Researchers (SNI) is a challenge for any researcher, to enter this group, recognized at the national level, it is necessary to develop multiple activities. This document reflects the path of the researchers of the Autonomous University of Sinaloa (UAS) to achieve not only their entry, but their permanence in that system. Interviews were conducted with a sample of researchers from the university. The atlas.ti program was used to process the information, the results reveal their feelings and challenges to enter and the constant search to formalize the requirements to achieve permanence; the most complicated requirements to comply within in the CONACYT evaluations are exposed. It is commented that the researchers perform constant activities development actions to comply with the evaluation parameters established by the system.

Training of Researchers, SNI, Research

Resumen

Formar parte del Sistema Nacional de Investigadores (SNI) es un reto para cualquier investigador, ingresar a este grupo, reconocido a nivel nacional se requiere desarrollar múltiples actividades. Este documento reflexiona sobre el recorrido de los investigadores de la Universidad Autónoma de Sinaloa (UAS) para lograr no solo su ingreso, sino su permanencia en dicho sistema. Se realizaron entrevistas a una muestra de investigadores de la universidad. Se usó el programa atlas.ti para el procesamiento de la información, los resultados revelan su sentir y desafíos para ingresar y la búsqueda constante por formalizar los requisitos para lograr la permanencia; se exponen las exigencias más complicadas de cumplir en las evaluaciones del CONACYT. Se comenta que los investigadores realizan acciones constantes de desarrollo de actividades para dar cumplimiento a los parámetros de evaluación que establece dicho sistema.

Formación de Investigadores, SNI, Investigación

Citación: SOTO-DECUIR, María Guadalupe, MAZO-SANDOVAL, Isabel Cristina and MAZO-SANDOVAL, María Concepción. The journey of the scientific researchers of the Universidad Autónoma de Sinaloa for the recognition of their professional work. ECORFAN Journal- Spain. 2018, 5-8: 18-25.

* Correspondence to Author (email: soto.decuir@gmail.com)

† Researcher contributing first author.

Introduction

Scientific research and its applications are of great benefit for economic growth and sustainable development, the future of humanity will depend on its dissemination and use (United Nations Educational, Scientific and Cultural Organization [Unesco], 1999; 2015). For the above to have an effect, it is necessary the presence of researchers, without their effort, tenacity, persistence and the will of scientific, technological and / or social advances, would not flourish; Little has been studied about the problems they face, the limited spaces they have, or the work they carry out to achieve their quality work that impacts the different areas in which the human being develops.

In relation to the above, scarce information has been found about the methodological approach of this study, since the quantitative literature on the subject abounds, for example Reyes and Suricachi investigated the amount of scientific production to be admitted into the National System of Researchers (SNI); the correspondence of the level of publications in the Institute for Scientific Information (ISI) and the researchers that form part of the SNI, and have analyzed the percentage of researchers who choose to be evaluated by the National Council for Science and Technology (CONACYT) and their favorable versus unfavorable responses, the differences that they reach by areas of knowledge, as well as the average indicators that they must achieve in order to obtain a positive evaluation at the different levels of the SNI (Reyes & Suricach, 2010, 2012a, 2012b); Didou and Gérard (2011) investigated the progressive but incomplete standardization of the criteria that govern national scientific elites.

We also found a qualitative study that reflects the teacher as a professional who travels in the research, teaching, dissemination and generation of culture and knowledge (Santos, 2017); In addition, conferences of researchers from the SNI have been developed with the aim of generating a space for reflection from the perspective of gender and equity in the system of scientific research and technological innovation and in the higher education system.

Due to the above, a study was sought that would reveal their professional work of the members of the National System of Researchers of the Autonomous University of Sinaloa (UAS) that in 2017 was registered 266 SNI (Directorate General of Research and Postgraduate Studies [DGIP], 2017) in the three regional units:

Regional Unit Center (URC), Regional Unit North (URN) and South Regional Unit (URS), which have recently entered or have remained for more than 20 years, so it is not only a task of searches or theoretical referents about its results, but to make visible the long journey that the scientific researchers of the UAS go through the recognition of their work experience as members of the SNI.

In Sinaloa 1996, with the support of CONACYT, the State Board of Science and Technology (COECYT) emerged whose main purpose is to promote science and technology for the economic and social development of the State. But in the constant search for improvement, in 2012 the Institute for the Support of Research and Innovation (INAPI) was created with the aim of promoting scientific research, innovation, development and technological modernization of the economic units of Sinaloa (Institute of Support for Research and Innovation [INAPI], 2012), this institute encourages the work of the teacher-researchers, in this space and through the call of state scientists, the most influential areas are the social sciences and humanities. Although having the above institutions is an advantage, most of the research in Sinaloa is done with little budget and without recognition.

From the above, the objective is to unveil the challenges faced by university professors when translating from the role of professor to that of research professor to acquire recognition for the National System of Researchers.

Description of the method

The methodological approach used in this research is circumscribed in the qualitative paradigm, from a perspective centered on understanding the meaning of the actions of the study subjects. To this end, a representative sample of researchers from the three regional units were established and interviews were conducted at 30 SNIs (10 per regional unit), with the purpose of covering the 7 established areas CONACYT: **I.** Physical-mathematical Sciences and Earth Sciences, **II.** Biology and Chemistry, **III.** Medicine and Health Sciences, **IV.** Humanities and Behavioral Sciences, **V.** Social Sciences, **VI.** Biotechnology and Agricultural Sciences and **VII.** Engineering. The Autonomous University of Sinaloa divides its territorial extension into three regional zones. Each regional unit has its own characteristics, from geographical location, population density, spaces for research and number of students to develop postgraduate studies.

This research seeks to reflect in equal numbers the opinions of the teachers-researchers each of the zones, which shows that the researchers are on equal terms, and face the same conflicts and limitations, so they sought a representative sample that will contemplate the three zonal units, it was determined that thirty met the objectives pursued, not finding variation in the results with the increase of interviewees.

These interviews were conducted from February to October 2017 and a semi-structured interview guide based on the objective to be investigated was developed for the collection of information; the appointments with the investigators of the Regional Unit Center and North Regional Unit were arranged via email and those of the South Regional Unit were personally sought to schedule them. The URC and URS interviews were conducted in person at the UAS facilities, while those of the URN were developed by video call. The interview as a qualitative research method is a tool for analysis and can be done in different ways, in person or by phone. (Cuña, 2007).

It should be noted that, in the realization of the fieldwork, the SNI of the URN and URS presented a kind and immediate response to the request and availability for conducting the interview, however the SNI of the URC were apathetic and distrustful, when the interview were tense, nevertheless the rapport was established, the interviewees' tone was decreased, they had a positive attitude and the goal of the interview was met.

The interviews were recorded in digital audio and transcribed to proceed to sort the information gathered with the support of the qualitative analysis program atlas.ti. Then, they were analyzed from an analytical and interpretative approach based on the qualitative interpretive paradigm that seeks the comprehension of the dynamic reality in which the study subjects are immersed.

The analysis of the information in the atlas.ti program began with a coding (subcategories), to immediately create and organize the families (categories) and subsequently link them with the citations of recognized information sources that support the research (these were carried out at through specialized virtual databases such as Proquest, Ebsco, Redalyc, Miar, Google academic, among others). Subsequent to the link was made a first scientific interpretation (logical, verifiable and systematizable) of the contents of the categories with the theory. A constant comparison and reorganization was made, in order to objectify a pertinent analysis to address the problem.

Results

The promotion of scientific, technological and innovation work is essential in the progress of a country. "The researcher is the central device of the scientific community: its exercise is concentrated in an institutional surface that endorses it, forms it and provides it with material, organizational, theoretical-methodological and cognitive conditions" (Maisterrena, p.80, 2018). The UNESCO Science Report states that "research is a factor in accelerating economic development and, at the same time, a determining factor in the construction of more sustainable societies" (UNESCO, 2015). In this regard, scientists are essential, they promote the transfer and exchange of knowledge based mainly on scientific research, training and education (UNESCO, 2015), however the path they take in their training and recognition is not always visible.

This report highlights numerous examples in which countries have recognized the need for better management to promote endogenous science and innovation (UNESCO, 2015), regarding the situation in Mexico, recognition of the work of researchers dedicated to producing scientific and technological knowledge is provided by CONACYT, which grants the appointment of national researcher, which is a symbol of quality and prestige of their contributions in conjunction with economic stimuli. (CONACYT, s / f) In Sinaloa, INAPI promotes and strengthens scientific research, technological development and innovation, in order to link science and technology with education. (INAPI, 2012)

However, in the work of the researcher "Difficulties arise to acquire a job related to the training received (research) and work conditions also change in terms of job security" (Maisterrena, p.82, 2018). Due to the above, this research reflects on the categories that "have permeated the teaching practice of university professors, transforming from the role of professor to professor-researcher" (Guerrero, 2017, p.1), these are: challenges of entry and permanence in the roads to the SNI, in the subcategories of "incorporation and continuity to the SNI"; The category of: human capital trainers in the subcategories of "thesis management", "commitment weaknesses and of students as future researchers" is also studied.

Challenge of entry and stay on the roads of the SNI

It is a challenge for every teacher-researcher to have the distinction of the SNI by CONACYT, for this category, the challenge of entry or permanence is defined as the commitment, purpose and monitoring that researchers acquire to demonstrate the quality of their professional work, so the complexity joins the different dimensions of the problem.

For example, the challenge for entry at first is the production and publication, to which the researchers surveyed expressed:

It helped me to produce enough in conjunction with my director to enter the SNI and I worked according to the rules that are not written, but you know they are taken into account (Research 2, area V).

Another mentioned:

The challenges are obviously to publish, have publications in high impact journals and have student thesis, collaborate with them with undergraduate and graduate students and team up with other researchers, these are the challenges to enter and maintain, but without resources is complicated (Research 7, area VII).

In the same sense, another said:

The challenge is to always be working, because the SNI is momentary, tomorrow I can no longer be in the SNI, I have to always be working on the research part, it's not that I arrived and I'm going to stay there, it's always work with scientific questions, participate in congresses and all the things one does (Researcher 8, area VII).

The recognized production are: the articles ruled by a rigorous editorial committee, books reviewed and published as well as book chapters in recognized publishers, before the above, a researcher said:

What you produce must have a certain level of quality, because they evaluate you with very rigorous academic criteria, so everything you do, you have to take care of (Research 9, area IV).

Another challenge is the administration of time in relation to the multiple activities as a teacher and researcher, and is explained as follows:

It is a challenge for me to stay, because sometimes I have little time and I have to comply with tutorials, classes, I have to be working with graduate and as I have limited time here, I also have only two theses completed in three years, I think they ask us to finish one per year, or it is the most advisable to go guaranteeing permanence or continuity (Research 11, area V).

The personal challenge of the researchers who have worked on the paths to enter or remain in the SIN, involves producing in conjunction with the director, which depends on the time and dedication that the thesis director dedicates to the graduate student, taking into account the evaluation criteria by CONACYT to obtain recognition, as they are published in high impact journals, so.

One of the challenges of any scientific researcher is to publish in journals that have international recognition (refereed and indexed by the highest quality standards), that their research works are published in books or book chapters to be consulted and cited by experts and that serve to shape and solidify the knowledge society. (Soto, Mazo & Mazo, 2017, p.100).

In this sense, "share the knowledge generated with the society to which we owe" (Cabrero, 2015), with the commitment to intervene proactively in the search of alternatives for the improvement of the country, however, these have not been covered, as the "product of research force, is measured both quantitatively and qualitatively. [...] Mexican scientific production has been increasing. However, the number is still very low compared to most of the OECD member countries "(CONACYT, 2014). And the lack of resources (of any kind, whether economic or human) for research and scientific development diminishes the formative and work opportunities of those who aspire to engage in research.

The SNI as trainers of human capital

Training and integrating a country with human capital is a must for the development and consolidation of a society.

No country has been able to accelerate its journey towards a knowledge economy without having significantly expanded the pool of highly qualified human capital. Science and technology depend on laboratories, equipment and infrastructure, but fundamentally depend on human capital. (Cabrero, 2018).

In this sense, a country that forms "high level human capital and train women and men committed to a more just and prosperous society" is required (CONACYT, 2014)

It is considered as part of the formation of human capital the direction of thesis, because it is an educational practice "that is considered by literature as one of the factors of greater weight in the training of researchers and in the probability that students complete or not his doctoral programs "(Fernández & Wainerman, 2015, p.156), however, when they have approached and questioned the newly-enrolled SNIs, they express to us that they have the need to search or track students who want to be titled by thesis, be it undergraduate or graduate, it is an evaluation criterion on the part of CONACYT and it is not presented very easily because the university has different options of degree (average, social service memory, diploma, professional practice, etc.) or students usually resort to more experienced researchers.

To support the above, the new income researchers express: To enter the SNI we have to direct theses outside our institution, because we do not have here, where? [...] as a school we do not have to follow up or continue with the postgraduate course, since there was no interest on the part of the management. On the other hand, I have social service students from here of faculty, a group of ten [...], but it seems that no one wants to do thesis, it is only to get the memory of social service, they have not been interested in thesis title. As they are given different options to be titled, they go for the one that suits them best (Researcher 11, area V).

In addition, he mentions that: Since we do not have a graduate degree here, that is a field in which I am low, it is where I am hesitating, I need to look for something, look for someone and convince them in a very short time to comply with that item (Researcher 11, area V).

In the same line another new income researcher expresses: In fact, for the thesis I have complicated a bit, because in the university they have several types of degrees, and the easiest is by average or diploma, then the thesis is really like the last option or almost nobody select it (Researcher 1, area VII).

Another expresses: I am invited to participate sometimes in some tutorial committees, but only as a guest, although it is an achievement, I need to direct a thesis to demonstrate that I have the capacity to train human resources (Researcher 3, area IV).

And although SNIs look for strategies, such as being co-director, is what it could be, that a teacher of the basic nucleus is the director and I the co-director, there it would be a strategy that could be implemented, a co-direction (Researcher 2, area V).

The above is not enough, since UNESCO (2015) suggests the formation of high-level human capital in higher education.

Teachers-researchers also express their feelings in relation to their integration into the core academic groups,

The academic body be inclusive, because if it is not going to be equitable when it comes to distributing students, it is centralized in some people, for example, from the area that we covered five new students entered and I was not assigned any, only to the full times (Researcher 7, area VII).

The above, states that the new scientific researchers entering the SNI make a greater effort, on the one hand they face an outsourced labor context (Maisterra, 2018), and on the other "they face the challenge of unison to cultivate the innovation of their practices educational and provide spaces for reflection and research and also teach in the classroom "(Soto, Mazo & Mazo, 2017)

And according to Rebeca de Gortari

Teamwork is also key for knowledge flows to cross disciplinary boundaries with more mobile human resources and a more open and flexible organization of production towards the creation of networks that break traditional disciplinary barriers (as cited in Gatica, 2017)

On the other hand, there are opposing discourses, while the SNI that have more than twenty years and are part of the core of a graduate program, express that in the formation of human capital in postgraduate students:

They reach the masters and doctorates, and remove the training habits, remove many things and if they do not have basic readings it is a big problem. You can not in two years remove a process of six years that you had to build [...] bring problems of writing, they bring problems of text comprehension and bring problems, for example of few reading habits [...] are not able to last three, four hours reading (Researcher 10, area V).

Newcomers expressed that: They are already students with a little more maturity and therefore it facilitates them with more in the question of doing, in terms of research and also the same in the case of writing less is fought but they are still learning, everything is a matter formative and little by little they improve their writing or writing of thesis (Researcher 7, area VII).

However, SNIs identify a limitation or barrier as weakness in graduate students. The English language I think is the general deficiency in postgraduate students, they bring a bit of notion, but it is a limitation, since most of the journals in the area are in English. Although in the end they have to comply with the domain, even if reading, because it is a requirement for them (Researcher 5, area III).

In the same tenor, another researcher expresses. It is an important barrier, as always at the international level is the dominant language, in fact to generate a good product a good publication because it has to be in English to submit it to an indexed magazine and that can be easily consulted by the international community, then if we want to reach that point, it has to be done in that way (Researcher 13, area II). Mastering a second language, preferably English is necessary both for the teacher-researcher and student in training, is essential when performing your searches in international databases, consultations with experts and recommended for the publication of your work and / or research if they want to make themselves known internationally.

On the other hand, in the implicit discourse of the researchers another subcategory emerged, that of student commitment, understanding the value of commitment as the positive mental state related to studies, where dedication is an important factor in learning and personal development of the students (Casuso-Holgado, et al, 2013).

Researchers with respect to academic level express that: The academic level is not so necessary, but the desire of the student to learn and the researcher to teach, generally speaking, demand the student (Researcher 6, area III).

Another stated that: The guys who come to do the thesis with me bring a lot of desire which makes them level out, it's not something that I see or at least I do not receive students who do an activity to forces or who feel that they have a heavy commitment, they enter because they want and alone they put the rope around their neck because there are several options but they decide to do thesis so I try to maintain harmony, the truth is that working with people is always very diverse, it is complex but it is not difficult then communication is very important and until now it has worked for us (Researcher V, area VI).

And in that commitment, is the researcher-student relationship, is the scaffolding that the researcher provides in the formation of high-level human resources is a promotion for the knowledge society, is guiding and sharing their knowledge for the new generations, and this one researcher expresses:

One of the publications is about to be submitted, in fact I am very much in writing your draft, your manuscript in English as you can and then we support them to improve the document, but it is encouraging them to be encouraged, because many times We believe that we can not, then until you are forced to do it, you succeed. We try to drive them from there, let them reach the maximum point (Researcher 12, area VI).

But we must remember that students are also people, and as people should not neglect the different roles or activities in which they are immersed, because they should be formed comprehensive people, before this an investigator mentions that. The student's challenge is familiar, and he must plan and organize his activities very well, for example, if one of the students is married, has children, it is very difficult to carry out a national or international research stay due to family obligations, but that reason is not one for them to limit themselves to being trained as researchers, on the contrary, they should be supported (Researcher 8, area VII).

Due to the foregoing, situations arise in the formation of human capital, where new teachers entering the SNI who are looking for someone to train, do not find themselves as researchers within quality and relevance graduate programs accredited by CONACYT. And researchers who are more than twenty years of belonging to the SNI, look for students with a solid academic and personal background.

Therefore, the SNIs face several problems in the formation of human capital: they seek and materialize financing strategies for the development of projects, apart from the tireless work of convincing young apprentices of researchers, who in addition to achieving motivation in them, The problem of academic training in terms of reading, writing and research is presented. (Soto, Mazo & Mazo, 2016) And some who have the commitment, should plan, organize and play the different daily roles (personal, family, social, student) that as an integral person should be formed for society. Cabrero mentions that the best investment that can be made in science and technology is in highly trained human resources, since without these there is no progress (cited in Sánchez, 2017).

Final comments

The privilege of being part of the SNI represents a challenge for those who wish to remain in it, it is a constant search to develop activities to comply with the evaluation parameters established by said system, where the researcher must make quality publications, as well as training human resources through theses, activities that are not easy to fulfill, since all activity represents time, money and effort. Researchers face a series of goals that must be overcome to achieve their purpose of producing knowledge, be part of the select group recognized nationally, and obtain an income for that privilege, income that is at the same time reinvested to continue developing research.

High-level vocational training requires commitment, discipline and guidance; the incorporation to the standards of recognition of the research work is without hesitation, a step more difficult to upload; for this, as described in this article, it ranges from training in quality postgraduate studies, to joining to collaborate with researchers already consolidated or in the process of consolidation; that is, develop both the knowledge of the discipline and the skills of teamwork and perhaps collaborative environments but with very high challenges that generate stressful situations.

The preoccupation to be and to belong to programs like the SNI in the institution in study, crosses situations that are of national nature as it is the one that does not count on appointments like professors investigators of complete time; then, being a teacher hired for hours limits the opportunities to have hours devoted to research or membership in the Base Academic Nuclei in the graduate programs that are in the National Graduate Quality Program.

It is necessary to improve the working conditions of researchers in all areas, so that "Mexico achieves, among other things, being a generator and not a consumer or maquiladora of knowledge" (Maesterra, 2018).

The reflections that are presented, reflect the situations experienced by the teacher-researchers, but to think that darkness is the predominant thing, would leave us with an unpromising panorama (unfortunately this is the first impression); However, young teachers show that they have the knowledge, availability and openness to be recognized and consolidated researchers in the future that the institution and the country need, we believe that universities, as well as the national education system itself see in them the bearers of innovations and new knowledge that can provide solutions to the big problems we face.

References

Cabrero, E. (enero, 2015). Principales logros y desafíos del Sistema Nacional de Investigadores de México a 30 años de su creación. *Revista CTS*, 10(28). Recuperado de http://www.revistacts.net/files/Volumen_10_Numero_28/FINAL/13CabreroFINAL.pdf

Casuso-Holgado, M. J., Cuesta-Vargas, A. I., Moreno-Morales, N., Labajos-Manzanares, M. T., Barón-López, F. J., & Vega-Cuesta, M. (2013). The association between academic engagement and achievement in health sciences students. *BMC Medical Education*, 13(1), 1-7, doi:10.1186/1472-6920-13-33

Consejo Nacional de Ciencia y Tecnología [CONACYT]. (s/f). Sistema Nacional de Investigadores. 30 de Enero de 2018, Recuperado de <https://www.conacyt.gob.mx/index.php/el-conacyt/sistema-nacional-de-investigadores>

Consejo Nacional de Ciencia y Tecnología [CONACYT]. (2014). Programa Especial de Ciencia, Tecnología e Innovación 2014-2018. Recuperado de http://www.dof.gob.mx/nota_detalle

Cuñat, R. (2007). *Aplicación de la Teoría Fundamentada (Grounded Theory) al Estudio del Proceso de Creación de Empresas*. Trabajo presentado en el XX Congreso anual de AEDEM, Palma de Mallorca, España. Recuperado de <http://dialnet.unirioja.es/servlet/articulo?codigo=2499458>

Dirección General de Investigación y Posgrado [DGIP]. (2017). Investigadores vigentes 2017. 12 de Febrero de 2017, de UAS Sitio web: <http://dgip.uas.edu.mx/SNI.html>

Didou S., & Gérard, E. (2011). El Sistema Nacional de Investigadores en 2009. ¿Un vector para la internacionalización de las élites científicas?. *Perfiles Educativos*, 33(132). Recuperado de <http://www.scielo.org.mx/pdf/peredu/v33n132/v33n132a3.pdf>

Fernández, L., & Wainerman, C. (2015). La dirección de tesis de doctorado: ¿una práctica pedagógica?. *Perfiles educativos*, 37(148), 156-171. Recuperado de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982015000200010&lng=es&tlng=es.

Gatica, G. (2017, 22 agosto). Importancia de la convergencia científica y tecnológica. *Agencia Informativa Conacyt*, p. 1. Recuperado de <http://www.conacytprensa.mx/index.php/sociedad/politica-cientifica/17710-importancia-convergencia-cientifica-tecnologica>

Guerrero, L., & Mejia, L. (2017). Políticas públicas de fomento a la investigación y la práctica docente de profesores universitarios. *Revista de Políticas Universitarias*. Vol.1 No. 1. Recuperado de http://www.ecorfan.org/republicofperu/research_journals/Revista_de_Políticas_Universitarias/vol1num1/Revista_de_Pol%C3%ADticas_Universitarias_V1_N1_4_1.pdf

Instituto de Apoyo a la Investigación y la Innovación [INAPI]. (2012). Ley de Ciencia, Tecnología e Innovación del Estado de Sinaloa. 30 de Enero de 2018, de INAPI Sitio web: http://www.congresosinaloa.gob.mx/images/congreso/leyes/zip/ley_ciencia_tecnologia.pdf

Maisterrena, M. (2018). La inserción laboral de los egresados del sistema universitario con perfil de investigador en México. Un breve análisis de factores históricos y problemas institucionales académicos. *Prometeica Revista de Filosofía y Ciencias*. 16, 78-88. doi: doi.org/10.24316/prometeica.v0i16.211

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura [Unesco]. (1999). Declaración sobre la Ciencia y el uso del saber científico. Declaración de Budapest. Budapest: Conferencia Mundial sobre la Ciencia para el Siglo XXI: Un nuevo compromiso. Recuperado de <http://unesdoc.unesco.org/images/0012/001229/122938so.pdf>

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura [Unesco]. (2015). Informe de la UNESCO sobre la ciencia hacia 2030 resumen. 30 de enero de 2018, de Ediciones UNESCO Sitio web: <http://unesdoc.unesco.org/images/0023/002354/235407s.pdf>

Reyes, G. & Suriñach, J.(2010). Los nuevos ingresos como candidato a investigador en el SNI, 1996-2003. *Perfiles educativos*, 32(127), 8-37. Recuperado en 19 de junio de 2018, de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982010000100002&lng=es&tlng=es.

Reyes, G., & Suriñachi, J. (2012a). Las evaluaciones internas del SNI: coherencias o coincidencias. *Secuencia*, (83), 179-217. Recuperado de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0186

Reyes, G., & Suriñachi, J. (enero-junio, 2012b). Las publicaciones de los investigadores mexicanos en el ISI: realidad o mito del SNI. *Sinéctica*, 38. Recuperado de <https://sinectica.iteso.mx/index.php/SINECTICA/article/view/97/89>

Sánchez, V. (2017, 14 septiembre). Enrique Cabrero, el reto de dirigir el Conacyt. *Agencia Informativa Conacyt*, p. 1. Recuperado de http://www.conacytprensa.mx/index.php/sociedad/personajes/18163-enrique-cabrero-reto-dirigir-conacyt?fb_comment_id=1646174742122114_1650702185002703#f24bf9de43287b8

Santos, A. (2017). Flashes de emancipación en la actuación docente e investigación universitaria de los miembros del sistema nacional de investigadores (SNI). (Spanish). *Roteiro*, 42(1), 11-35. doi:10.18593/r.v42i1.11547

Soto, M., Mazo, I., Mazo, C., (2017). Sistema Nacional de Investigadores: vicisitudes en el ingreso y permanencia. *Revista de Alta Tecnología y la Sociedad*. p. 99-104. Recuperado de <https://drive.google.com/drive/folders/0B4GS5FQQLif9NkFydDJROEIRZFU>

Analysis of the results of public investment applied to federated sport

Análisis de los resultados de la inversión pública aplicada al deporte federado

CHAVEZ-TORRES, Rosa del Carmen*†, PALACIOS-MELÉNDEZ, José Giovanni, CHAVEZ-GONZABAY, Leonardo Augusto and CEDEÑO-PINOARGOTE, Jairo Manuel

Universidad Estatal Península de Santa Elena, Instituto de Postgrado y Carrera de Administración de Empresas, Santa Elena, Ecuador

ID 1° Author: *Rosa del Carmen, Chavez-Torres* / ORC ID: 0000-0002-6927-6449

ID 1° Co-author: *José Giovanni, Palacios-Meléndez* / ORC ID: 0000-0002-4664-0615

ID 2° Co-author: *Leonardo Augusto, Chavez-Gonzabay* / ORC ID: 0000-0002-9702-1507

ID 3° Co-author: *Jairo Manuel, Cedeño-Pinoargote* / ORC ID: 0000-0003-2124-6133

Received January 25, 2018; Accepted June 12, 2018

Abstract

This research work aims to characterize public investment in Ecuador as a contribution to the development of the provincial sport in Santa Elena, during the period 2013 to 2017 and its effectiveness in the incidence of the increase in athletes of High performance, for this we avail ourselves of the information provided by the financial and methodological departments of the Provincial Sports Federation of Santa Elena (FEDESE). The results obtained confirmed the lack of effectiveness in the increase of athletes of high performance, also revealed that the evaluation to the investment made only applies to sports results leaving aside the administrative management.

Public Investment, Federated Sport, Management Indicators

Resumen

Este trabajo de investigación tiene como objetivo caracterizar la inversión pública en Ecuador como aporte al desarrollo del deporte federado provincial en Santa Elena, durante el periodo 2013 al 2017 y su efectividad en la incidencia del incremento de deportistas de alto rendimiento, para ello nos valimos de la información proporcionada por los departamentos financiero y metodológico de la Federación Deportiva Provincial de Santa Elena (FEDESE). Los resultados obtenidos confirmaron la falta de efectividad en el incremento de deportistas de alto rendimiento, además reveló que la evaluación a la inversión realizada únicamente se aplica a resultados deportivos dejando de lado la gestión administrativa.

Inversión Pública, Deporte Federado, Indicadores de Gestión

Citación: CHAVEZ-TORRES, Rosa del Carmen, PALACIOS-MELÉNDEZ, José Giovanni, CHAVEZ-GONZABAY, Leonardo Augusto and CEDEÑO-PINOARGOTE, Jairo Manuel. Analysis of the results of public investment applied to federated sport. ECORFAN Journal- Spain. 2018, 5-8: 26-32.

* Correspondence to Author (email: carmen_rosa_chavez@hotmail.com)

† Researcher contributing first author.

Introduction

The social, political and economic influence that sport has on the population and the growing demand for financial investment that is allocated by the government for its operation, demonstrates the importance of evaluating the way in which resources are administered. A common practice in the administration of sports organizations in Ecuador is the lack of academic specialization when it comes to administration, it is clear that each professional field requires specific knowledge, so why assume that managing sports entities is the exception? The efficient administrative management, to say of (Cohen & Franco, 2006) "... can help to reach more resources and also multiplies the performance of those that are available".

The public investment made in private non-profit organizations of a social nature requires the monitoring of the proper use of economic resources in achieving the objectives that these have been raised, consequently, evaluation means an important element of their actions, since it allows to make improvements in planning and allocate resources rationally.

The Ministry of Sports, rector of sporting bodies in Ecuador, regulator of budgetary activity, framed in the common principles of the Planning and Public Finance Code, conducts annual evaluations of state investment, as of the year 2017 implemented as evaluation policy the issuance of "Guidelines and Guidelines for the Execution of the POA" formulating compliance indicators for the different activities, before this, only the compliance of the economic investment was measured, leaving aside the expected impact on the Ministry's objectives. Although with little evidence, due to the lack of relevant information, the hypothesis was raised that the lack of effectiveness in the increase of high performance athletes may be related to administrative management, which can hardly be measured without the help of management indicators.

Theoretical framework

The administrative management in sports organizations requires an understanding of the magnitude and importance of the exercise of the position, given that among its functions is to formulate projects that provide athletes with the three essential conditions that according to (Acosta, 2005).

"They need to practice sports and participate in sports competitions: material support (opportunities and infrastructure), organizational support (planning and programming) and professional administration (pertinent and continuous information on the organization and clear and effective management) "so it is necessary that administration change from a command model to a knowledge model (Gutierrez, 2007).

Brostóns (2007) proposes an integral model of management for Sports Federations where the organizational structure and the functions of each member together with the documentary record of the processes and the execution authorizations, are the bases of the planning for the selection of strategies and the formulation of programs and projects ending with an evaluation and feedback system conducive to modifying strategies and formulating management indicators that identify the weak points of the actions.

Authors how (Beotas, et al., 2006), (Acosta, 2005) and (Brotóns, 2007) identify the need to have professionals in the sport administrative field, organizational learning guarantees individual learning but it does not happen the same if this relationship is In the opposite direction (Senge, 2005), due to the competitive nature of sport, we continuously seek individual protagonism not only in the disciplinary results but also extend to institutional objectives with respect to other sports organizations, this individuality also prevents us from being nourished by knowledge of other federations with greater experience and better technology.

Another point of view on administrative management is that of (Acosta, 2005), which examines sports organizations from the perspective of the organizational structure, where there is evidence of absence of administrative procedures, in fact, it speaks of the trilogy "Organization, Administration and Management "as the driving force of any sports association. To say (Cohen & Franco, 2006), although the administrative management is done with the best intentions but a thorough analysis of the alternatives and results of the investment will not be obtained the expected purposes.

Public Investment and Federated Sports

The Provincial Federations

According to the stipulations of the Ecuadorian Sports Law Art. 25, the sports classification has 4 levels of development: Formative, High Performance, Professional and Adapted or Paralympic, Provincial Federations are framed within the training development. Santa Elena is one of the youngest provinces of Ecuador, established in November 2007 as the sixth coastal province of the Ecuadorian state, saw federated sport regularized with the creation of FEDESE in 2009, heir to the assets and liabilities of the extinct Cantonal Sports League of Santa Elena, assumed the responsibility of improving the old sports scene and provide federated athletes with the necessary implementation to boost them to high performance.

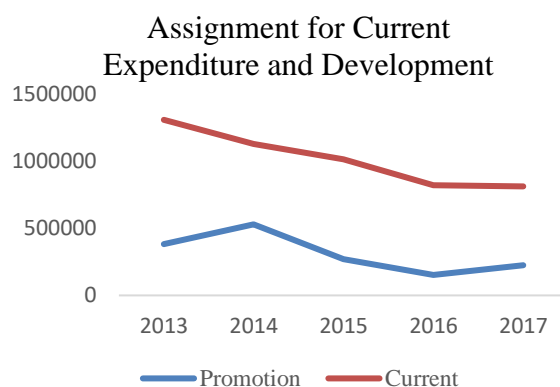
Budget and Distribution

Article 131 of the Ecuadorian Sports Law contemplates the use and administration of resources, through the control of budgetary and technical execution. 95% of the income of the FEDESE comes from the budget assigned by the State that during the period analyzed has been reduced from \$ 1 308,111.62 received in 2013 to \$ 812,126.06 in 2017, which would be approximately 38% less. According to current regulations, the budget distribution is divided into two main groups: current expenditure (salaries, salaries, basic services, leases, insurance, vehicle maintenance, etc.) and Sports Promotion (uniforms, sports implementation, trip of the sports disciplines in the different competitions and maintenance of sports venues).

The FEDESE has a unique sports scenario, the stadium "Alberto Spencer Herrera", located in the capital of the coastal province of Santa Elena, is affected by the corrosion characteristic of the salty climates, the chloride in the air coming from the water of the sea and that drags the wind, intensifies the corrosion process of the metallic materials of the old building, its gradual deterioration ended up leaving it out of service due to the lack of both preventive and corrective maintenance, so it is not a source of income limiting the economic independence that other federations have that have several sports scenarios that allow them to generate revenues higher than those assigned by the central government.

Since the creation of the Ministry of Sport in 2007 and the enactment of the Law regulating it in 2010, the national sport has experienced an increase in resources by the Ecuadorian State with a view to solving social and social needs.

The demand of the organizations responsible for sporting activities, however. Only a decade after the creation of the Ministry of Sports, the national government decided to merge it with its Education counterpart, this could lead one to think that the public investment made does not bring about the expected change.



Graph 1 Allocation for Current Expenditure and Development

Source: FEDESE Financial Department

Investment in Sports Promotion

As of May 2016, the e-SIGEF financial system was implemented for sports organizations that had the endorsement of the Ministry of Sports, in order to obtain relevant and relevant information for decision-making, for this reason the lack of formality of Financial information from the previous periods does not allow an efficient evaluation of the administrative management of these periods, however a breakdown of the expenses as close as possible to the sporting reality has been made.

The guidelines for the preparation of the POA identify 13 activities on which the subsequent evaluation will be carried out, these activities are: Operation and Administrative Maintenance, Operation and Maintenance of Sports Scenarios, Expenditures on Training Issues, General Sports Expenses, Concentrates, Camps, Evaluation, Base of Training, Selective, Championship, Games, Recreational Activities and Sports Implementation. In the province of Santa Elena The FEDESE has adopted as part of the Sports Promotion the following activities:

Maintenance of Sports Scenarios: It includes preventive and corrective maintenance of the sports venues of the institution. General Sports Expenses: It includes the payment of professional fees of trainers for the development of sports disciplines, expenses in medicine, purchase of uniforms.

- Training Base: This activity allows physiologically adapt the athlete to climatic competition conditions.
- Selective: It aims to qualify athletes with a view to forming a National Team.
- Championship: They are official sport events by discipline in order to achieve a title or climb positions.
- Games: It is characterized by being multidisciplinary, its execution can be national and international, it also includes all sports categories.
- Sports Implementation: Provide quality implementation for the promotion of sport and physical activity.

The Ministry of Sport technically evaluates sports performance by the annual results of national games developed in the categories of minors, pre-youth and youth, so it is a priority for sport organizations to focus efforts on activities that help prioritize it as They are sports implementation, training bases and general sports expenses, leaving aside the maintenance of sports scenarios as shown in table 1.

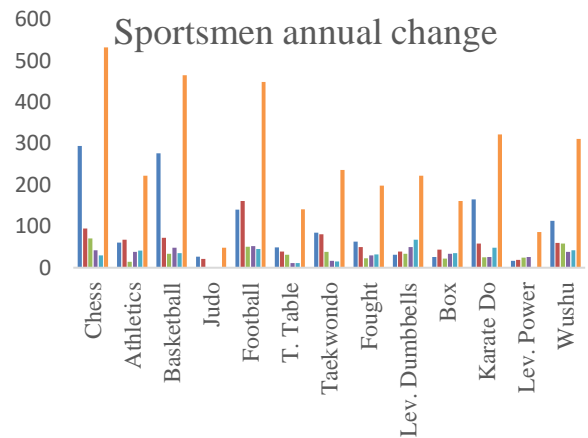
Activities	2013	2014	2015	2016	2017
Maintenance of Sports Scenarios	20,000	8,200	70,000	8,000	2,450
General Sports Expenses	92,257	112,995	22,050	10,332	94,640
Training Base	31,259	41,556	53,918	29,216	23,274
Selective	40,418	90,974	11,648	0.00	7,900
Championship	80,368	76,419	57,787	28,020	25,123
Games	0.00	91,514	38,472	37,784	23,732
Sports Implementation	138,100	67,820	17,000	47,000	43,985

Table 1 Components of Sports Promotion
Source: FEDESE Financial Department

Favored Athletes

Graph 2 shows the number of athletes who have benefited from the investment in Sports Promotion during the period analyzed. In addition to the Sports Promotion, the budget was invested in Recreational Activities such as the "Ecuador Exerítate" program that was carried out during the period 2013, as supported by the POA and whose objective was to reduce the sedentarism in the population of the province, so that this value was not added as part of the Sports Promotion in order to exclusively determine the funds allocated to the achievement of high performance athletes.

The lack of formal information is evident in the lack of a computer platform that yields reliable results on the measurement that is to be established between the budget and the number of athletes, the lack of knowledge on the construction of indicators and the activities ordered and planned by the Ecuadorians that govern the actions of the different disciplines make it impossible to comply with the organizational goals.



Graph 2 Federated athletes
Source: FEDESE Financial Department

Year	Chess	Athletics	Basketball	Judo	Football	T. Table
2013	294	61	276	27	140	49
2014	95	68	72	21	161	39
2015	71	14	34	0	51	31
2016	42	38	48	0	52	11
2017	30	41	35	0	45	11

Year	Taekwo ndo	Foug ht	Lev. Dumbbells	Box	Karate Do	Lev. Power	Wush u
2013	85	63	31	26	165	17	113
2014	81	50	39	44	58	19	60
2015	38	23	34	22	25	24	58
2016	17	30	50	34	26	26	38
2017	15	32	68	35	48	0	42

	Inverstmnt	Athletes	Disciplines
Investment	1		
Athletes	0.719280938	1	
Disciplines	0.802906822	0.78070196	1

Table 2 Correlation of variables
Source: Self made

Methodology

The economic investment was identified in the projects of Sports Promotion and the incidence in the number of federated athletes through a non-experimental design of a retrospective cohort with descriptive scope. The information used comes from the archives of the financial and methodological departments of the FEDESE from the periods 2013 to 2017 involving variation of budgetary amounts characterized in graph 1, distribution of the budget assigned to Sports Promotion indicated in table 1, also established the correlation between financial investment and the increase of athletes by discipline.

CHAVEZ-TORRES, Rosa del Carmen, PALACIOS-MELÉNDEZ, José Giovanni, CHAVEZ-GONZABAY, Leonardo Augusto and CEDEÑO-PINOARGOTE, Jairo Manuel. Analysis of the results of public investment applied to federated sport. ECORFAN Journal-Spain. 2018.

Conclusions

The evaluation of public investment made in private sports organizations such as Sports Federations has taken off at this time in which the Ministry of Sports is absorbed by its Education counterpart, which suggests future budget reductions as a result of this merger, forcing Federations to become more efficient in the use of allocated resources.

It is evident the relationship between economic investment and the number of athletes, it should be noted that, in the last two periods, where the financial management tool e-SIGEF was incorporated and despite the budgetary decrease the number of beneficiaries per discipline, although in a minimum percentage, it was increased, this would indicate in some way that the resources were used more efficiently by the administration.

The generation of information is essential if you want to project yourself towards future achievements, correcting past mistakes that allow an efficient administrative management.

References

Acosta, R. (2005). *Gestión y Administración de Organizaciones Deportivas*. Barcelona : Paidotribo.

Aguirre-Loaiza, H. &. (2014). Agentes Socializadores en la Iniciación Deportiva en Escolares de Centromérica y el Caribe. *Revista Latinoamericana de Estudios Educativos (Colombia)*, 62-80.

Aragón, P. (1992). *Técnicas de dirección y marketing para entidades deportivas*. Málaga: Junta de Andalucía.

Asamblea Nacional del Ecuador. (2010). *Ley del Deporte*. Quito: Registro Oficial Suplemento 255.

Beotas, E., Blanco, E., Cubeiro, J., Dorado, A., Gallardo, L., Lozano, J., . . . Senlle, A. (2006). *Futuras Claves en la Gestión de Organizaciones Deportivas*. Taracón-Cuenca: Ediciones de la Universidad de Castilla-La Mancha.

Blanco, E., Burriel, J., Camps, A., Carretero, J., Landaberea, J., & Montes, V. (2006). *Manual de la Organización Institucional del Deporte*. Barcelona: Editorial Paidotribo.

Brotóns, M. (2007). *Manual de Gestión para Federaciones Deportivas*. Sevilla: Wanceulen Editorial Deportiva S.L.

Burillo, P. (2012). *Las Instalaciones Deportivas en España y su Incidencia en la Actividad Físico-Deportiva de la Población*. Castilla La Mancha: Editorial Académica Española.

Cabello Oliveros, E. &. (2006). Evaluación de las Instalaciones Deportivas Escolares Desde el Punto de Vista de la Salud. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte / International Journal of Medicine and Science of Physical Activity and Sport*, 138-154.

Cabello, D. &. (2011). Análisis del Modelo del Deporte Federado Español del Siglo XXI. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte / International Journal of Medicine and Science of Physical Activity and Sport*, 690-707.

Cabello, D., Rivera, E., Trigueros, C., & Pérez, I. (2011). Análisis del Modelo del Deporte Federado Español del Siglo XXI. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte / International Journal of Medicine and Science of Physical Activity and Sport*, 690-707.

Campos Izquierdo, A. &. (2007). Los profesionales de la organización y gestión de actividad física y deporte en las instalaciones deportivas y entidades: características socio-demográficas y formativas. *RICYDE. Revista Internacional de Ciencias del Deporte*, 25-38.

Carrasco, D., Buendía, D., Navarro, A., Valencia, M., & Llorente, V. (2006). La Evaluación de la Eficiencia de los Servicios Públicos Deportivos a Través de Modelos de Cálculo de Costes e Indicadores de Gestión. *Revista Base (Administração e Contabilidade) da UNISINOS*, 311-320.

Castro, M., Zurita, F., Martínez, A., Chacón, R., & Espejo, T. (2016). Clima motivacional de los adolescentes y su relación con el género, la práctica de actividad física, la modalidad deportiva, la práctica deportiva federada y la actividad física familiar. *RICYDE. Revista Internacional de Ciencias del Deporte*, XII, 262-277.

Castro-Sánchez, M. &.-O.-M.-C.-G. (2016). Clima motivacional de los adolescentes y su relación con el género, la práctica de actividad física, la modalidad deportiva, la práctica deportiva federada y la actividad física familiar. *RICYDE. Revista Internacional de Ciencias del Deporte*, XII, 262-277.

- Cohen, E., & Franco, R. (2006). *Evaluación de proyectos sociales*. Argentina: Siglo XXI Editores S.A.
- Elasri Ejjaberi, A. (2018). Estrategias para la fidelización en empresas de servicios y acciones sobre procesos para el cambio organizativo. Aplicaciones en el sector de las instalaciones deportivas en España.
- Gallardo, L., & Jiménez, A. (2004). *La Gestión de los servicios deportivos municipales: vías para la excelencia*. Barcelona: INDE Publicaciones.
- García P., Í. &. (2015). Caracterización de la inversión pública en deporte y actividad física en Chile: Una aproximación a la medición de su efectividad. *Gestión y Política Pública. Revista electrónica Redalyc.org*, 55-82.
- Gutierrez, J. (2007). *Fundamentos de Administración Deportiva*. Medellín: Instituto Universitario de Educación Física.
- Herrera, I., Fernández, J., & Rodríguez, R. (2018). Dinámica relacional en los pueblos mágicos de México. Estudio de las implicaciones de la política turística a partir del análisis de redes. *Turismo y Sociedad*.
- INEC. (2009). *Costumbres y Prácticas Deportivas en la Población Ecuatoriana*. Quito: Talleres Gráficos del INEC.
- Isorna Folgar, M. &. (2012). Motivaciones para la práctica de deporte federado y del piragüismo en alumnos de primaria y secundaria. *RETOS. Nuevas Tendencias en Educación Física, Deporte y Recreación*, 19-24.
- Jiménez, R., Moreno, B., Leyton, M., & Claver, F. (2015). Motivación y estadios de cambio para el ejercicio físico en adolescentes. *Revista Latinoamericana de Psicología El Sevier*, 196-204.
- Johnson, M., Arduiz, O., & López, C. (2018). Atribución emocional en el taller de baloncesto escolar de una escuela pública en Chile: análisis de contenido. *Cuadernos de Psicología del Deporte*.
- Latiesa, M., Martos, P., & Paniza, J. (2001). *Deporte y cambio social en el umbral del siglo XXI*. Madrid: Librerías Deportivas Esteban Sanz, S.L.
- Luque Valle, P. &.-E.-G. (2011). Buenas prácticas para un desarrollo sostenible en los eventos deportivos en el medio natural. *Revista Interciencia*, 531-537. .
- Mañas Rodríguez, M. &. (2008). Los tangibles como predictores de la satisfacción del usuario en servicios deportivos. *Revista Psicothema*, 243-246.
- Marín, J., & García, O. (2009). Indicadores para la gestión de las instalaciones deportivas. *Atlas Sport Consulting*, 52-56.
- Mestre, J. (2004). *Planificación deportiva: teoría y práctica: bases metodológicas para una Planificación de la Educación Física y el Deporte*. Barcelona: INDE Publicaciones.
- Ministerio del Deporte. (2012). *El Deporte en Cifras*. Quito: Subsecretaría Técnica de Apoyo.
- Ministerio del Deporte. (2013). *Acuerdo Ministerial 0100*. Quito: Registro Oficial.
- Ministerio del Deporte. (2014). *Acuerdo Ministerial 0203*. Quito: Registro Oficial.
- Ministerio del Deporte. (2015). *Acuerdo Ministerial 0059*. Quito: Registro Oficial.
- Ministerio del Deporte. (2016). *Acuerdo Ministerial 0076*. Quito: Registro Oficial.
- Ministerio del Deporte. (2017). *Acuerdo Ministerial 0007*. Quito: Registro Oficial.
- Ministerio del Deporte. (16 de Marzo de 2017). *Directrices y Lineamientos para la Ejecución del POA 2017 de las Organizaciones Deportivas*. Obtenido de [www.deporte.gob.ec: http://www.deporte.gob.ec/wp-content/uploads/downloads/2017/03/Directrices-y-Lineamientos-para-la-Ejecucion%CC%81n-del-POA-2017-de-las-Organizaciones-Deportivas.pdf](http://www.deporte.gob.ec/wp-content/uploads/downloads/2017/03/Directrices-y-Lineamientos-para-la-Ejecucion%CC%81n-del-POA-2017-de-las-Organizaciones-Deportivas.pdf)
- Monjas Aguado, R. &. (2015). La transmisión de valores a través del deporte. Deporte escolar y deporte federado: relaciones, puentes y posibles transferencias. *RETOS. Nuevas Tendencias en Educación Física, Deporte y Recreación.* *Revista electrónica Redalyc.org*, 276-284.
- Morales-Sánchez, V. &.-L.-S.-M. (2016). Generalizabilidad y Gestión Deportiva. Cuadernos de Psicología del Deporte. *Revista electrónica Redalyc.org*, 161-170.
- Mujica, F., Arduiz, N., & López, R. (2018). Atribución emocional en el taller de baloncesto escolar de una escuela pública en Chile: análisis de contenido. *Cuadernos de Psicología del Deporte*.

Navas, L. &. (2006). Análisis de los Motivos para Practicar o no Actividades Físicas Extracurriculares y su Relación con el Autoconcepto Físico en Estudiantes Chilenos. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte*, 69-76.

París, F. (2005). *La Planificación Estratégica en las Organizaciones Deportivas*. Barcelona: Editorial Paidotribo.

Ramos-Carranza, I. &. -R.-S. (2015). La Gestión Efectiva de Instalaciones Deportivas Públicas: Diseño de un Instrumento. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte*, 285-291.

Rebollo, J., Sanz-López, P., & Díaz, M. (2000). *La Gestión Deportiva*. Huelva: Publicaciones Universidad de Huelva.

Rodríguez López, Á. (2010). La responsabilidad social en el deporte: el caso de las Federaciones deportivas gallegas. *Cultura, Ciencia y Deporte. Revista electrónica Redalyc.org*, 201-206.

Romero, S. &. (2017). Adaptación y Valoración Psicométrica del SRI (Specialization Recreation INDEX) en Deportistas Federados. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte*, 43-51.

Senge, P. (2005). *La Quinta Disciplina, Cómo impulsar el aprendizaje en la organización inteligente*. Buenos Aires: Gránica.

Siguenza, W., & Mariel, P. (2012). Determinantes de la Pertenencia a entidades Deportivas. *Revista Estudios de Economía Aplicada*, 467-488.

Tamayo, J., Martínez, F., & Díaz, M. (2000). *La Gestión Deportiva*. Huelva: Publicaciones Universidad de Huelva.

Zapata, G., Zapata, G., & Gómez, Y. (2010). Gestión y Características Administrativas de las Ligas Deportivas del Departamento de Antioquia 2000-2001. *Revista Politécnica*, 25-37.

Zapata, G., Zapata, G., & Gómez, Y. (2010). Gestión y Características Administrativas de las Ligas Deportivas del Departamento de Antioquia 2000-201. *Revista Politécnica*, 25-37.

Causes of the disappearance of vernacular housing in Tochimilco, Puebla

Causas de la desaparición de la vivienda vernácula en Tochimilco, Puebla

VÁZQUEZ-TORRES, María del Rayo*†, CASTILLO-REYES Alberto, Rosendo and NAVARRETE-GARCÍA, Mónica

ID 1° Author: *María del Rayo, Vázquez-Torres* / ORC ID: 0000-0002-3509-2684, Researcher ID Thomson: U-8561-2018, CVU CONACYT-ID: 508248

ID 1° Co-author: *Alberto Rosendo, Castillo-Reyes* / ORC ID: 0000-0001-6338-2534, Researcher ID Thomson: U-9440-2018, CVU CONACYT-ID: 950754

ID 2° Co-author: *Mónica, Navarrete-García* / ORC ID: 0000-0003-3547-4751, Researcher ID Thomson: U- 1-2018, CVU CONACYT-ID: 599095

Received March 25, 2018; Accepted June 10, 2018

Abstract:

This research aims to explain the factors involved in the decline and subsequent disappearance of vernacular dwellings in Tochimilco, Puebla and determine possible strategies for their conservation. The methodology with which the investigation was carried out was the review and analysis of documentary sources, interviews and city of Atlixco, Puebla and interviews and information of the inhabitants of Tochimilco which address different aspects cultural, social, economic and architectural. In terms of the limitation that has the job of field research, was the difficulty of entering the House as in the majority of cases only was able to get to the courtyard and entering some houses; but nevertheless the cadastral map and information of citizens and inhabitants to verify such information. The contribution of this work contributes findings favoring to the rescue of vernacular architecture as a tendency of the construction processes of dwellings in indigenous communities. Also in the academic field — reassess traditional building processes as part of culture building.

Deterioration, Conservation and Awareness

Resumen:

Esta investigación tiene como objetivo explicar los factores que intervienen en el deterioro y posterior desaparición de la dwelling vernácula en Tochimilco, Puebla y así determinar las posibles estrategias para su conservación. La metodología con la cual se realizó la investigación fue la revisión y análisis de fuentes documentales, las entrevistas e información de Catastro de Atlixco, Puebla y entrevistas e información de los habitantes de Tochimilco que permitieron abordar diversos aspectos culturales, sociales, económicos y arquitectónicos. En cuanto a la limitación que tiene el trabajo de investigación de campo, fue la dificultad de entrar a la dwelling pues en la mayoría de los casos solo se pudo llegar al patio y entrar a algunas dwellings; sin embargo se utilizó el plano catastral e información de catastro y de los habitantes para contrastar dicha información. La contribución de este trabajo aporta hallazgos que favorecen al rescate de la arquitectura vernácula como una tendencia de los procesos constructivos de la dwelling en comunidades indígenas. Además en el campo académico permite revalorar los procesos constructivos tradicionales como parte de la cultura edificatorio.

Deterioro, Conservación y Concientización

Citación: VÁZQUEZ-TORRES, María del Rayo, CASTILLO-REYES Alberto, Rosendo and NAVARRETE-GARCÍA, Mónica. Causes of the disappearance of vernacular housing in Tochimilco, Puebla. ECORFAN Journal- Spain. 2018, 5-8: 33-40.

* Correspondence to Author (email: mrayovt@gmail.com)

† Researcher contributing first author.

1. Introduction

This research work was based on qualitative research, interested in capturing the reality of the people studied, where the researcher induces the characteristics and conditions of the study problem. To achieve the above, it is necessary to use research techniques and instruments such as questionnaires, directed interviews and systematic observation, regulated or controlled.

The vernacular architecture is identified by different names such as folk, primitive, autochthonous, rural, anonymous or "science of the people"; from the point of view of cultural practices it is a cultural object that arises from the needs and interaction of social groups (MOYA, and others, 2014). The names of architecture without architects or vernacular architecture were used for the first time by Bernard Rudofsky, (1964) with his catalog of photographs of architectural solutions throughout the world and his work "Dwellings and Culture" (1969), states that the construction of a house is a social spatial unit, a cultural phenomenon, the result of social, functional and religious processes that allow the creation of an adequate environment to the way of life of a community (RAPOPORT, 1972, page. 65).

The interest for this architecture is not new and architects like Amos Rapoport, Rudofsky, Paul Oliver, Valeria Prieto, Luis Moya, Agustín Agudo, Celestino Candela, Lájara, Ricardo, Sainz, López Morales, José Ángel Campos, Gerardo Torres Zárate, among others, have valued and aroused interest in vernacular dwellings.

As a result, the interest in this subject comes from constantly seeing in different places of the state of Puebla where there are populations that still have an important vernacular architecture that express the culture and life of the inhabitants. Therefore, the present investigation focuses on the dwellings of Tochimilco, Puebla.

2. Tochimilco

Tochimilco means "Sementera de los Conejo", is a prehispanic population originally formed by 4 neighborhoods and with the arrival of the Spaniards a total of 8 neighborhoods; it is currently a population with 13 auxiliary boards. It is a population that is located in a risk zone, located in the foothills of the Popocatepetl volcano and has important resources. (INAFED, 2016), (figures 1 y 2).



Figure 1 Territory of the Atlixco Valley
Source: document in the Huaquechula Convent



Figure 2 Territory of the Atlixco Valley
Source: Microrregions Unit, Municipal Information Cards (SCIM) Municipalities ZAP Rural SEDESOL, October 2016

The population is mestizo and indigenous with traditions of Nahuatl origin; with an important population of migrants in the state of Puebla, its surroundings and the United States; the inhabitants are supported by agriculture and remittances resulting from migration (INEGI, 2010).

3. The dwellings in Tochimilco

The study conducted in Tochimilco yielded the following data: the use of dwellings predominates with 91.06%; the houses of a level correspond to 86.28%; 2 levels 13.34% and 3 levels 0.38%. The most common form is rectangular 73.57%; irregular corresponding to the topography of the place with 23.76% and square 2.67%. The main dwellings of the family are located in the front, but can house up to 7 houses inside; around a patio, where the slope of the roofs is directed to dislodge rainwater (figures 3, 4 y 5).



Figure 3 New dwellings and historical dwellings Tochimilco, Puebla
Source: Vázquez, 2016



Figure 4 Vernacular dwellings Tochimilco, Puebla, Vázquez 2017



Figure 5 Set of vernacular dwellings, the main house is located towards the street and the secondary ones around the patio
Source: Vázquez, August 2018

According to the analysis of the spatial configuration, the following data were obtained from the Cadastre support of the city of Atlixco and from the interviews:

Regarding the type of material, the adobe dwelling dominates the dwelling made with partition or block with 62.52% (historical dwellings 26.56% and vernacular dwellings 35.96%) in its original state, a modified dwellings and new dwellings 16.59% of 21.09%.

According to the above, it can be observed that there is still an important vernacular dwellings but it tends to disappear; it should be considered that most of the new architecture corresponds to the growth of the population (figure 5).



Figure 6 Vernacular dwellings without windows and with rectangular door
Source: Vázquez, August 2018

4. The causes of disappearance

The concepts of modernity and development are used as synonyms, as they are parallel processes; but there are differences. Modernity uses progress as an instrument of control and domination, and development as a transition or growth where potentialities are expanded and quantitative and qualitative growth is reached, or at least the conditions of life are transformed (DÍAZ, 2009, page. 133).

Consequently, the vision of modernity is based on a practical confidence in the material dimension and the technical capacity of the human being; where the technique is based on the use of a mathematical consistency ratio and not on socio-cultural processes that have a certain degree of uncertainty or magical order (ECHEVERRÍA, 2007).

The need for dwellings is solved in part by dwellings programs and these do not consider the adobe architecture because they do not consider it has no commercial value because it is a symbol of poverty and delay; which is why it is better to discard it, despite the fact that institutions such as INFONAVIT in the past supported the conservation of this architecture, in addition to not offering credits for its repair.

This has led to the loss of constructive tradition and therefore, the techniques used to repair homes are inadequate, coupled with the abandonment and deterioration of old buildings lead to create buildings that have nothing to do with the society where they are inserted (Guerrero, 2008, page. 112).

In the case of dwellings in Mexico, the SEDATU (Secretariat of Agrarian, Territorial and Urban Development) considers that modernity in dwellings is "Promote access to dwellings through well-located, decent dwellings solutions and in accordance with international quality standards. " (SEDATU, 2013). The foregoing, manifests the exclusion of vernacular architecture as part of modernity to close the gaps of social inequality.

In addition to this situation, industrialized materials companies promote the idea that the use of prefabricated and concrete materials will improve living conditions, supporting the concept of modernity and using the media to promote their products.

At this point, science and technology created economic gaps, contributing to the social inequality and distribution of wealth by establishing new social and economic hierarchies. However, at present, this process has been accelerated by the revolution in telecommunications and the emergence of artificial intelligence, which generates the breaking of borders (Guerrero, 2008, page. 112).

The concepts of modernity arrive more quickly than in other eras due to digital technology and the constant migration of the inhabitants in high levels of poverty. In zones where migration is constant, they absorb constructive elements with different characteristics of the habitat, influenced by other schemes. It is a process that mixes local and global knowledge influenced by the mass media, which results in diverse forms and transitions of dwellings (ÁLVAREZ, 2012, pp. 15-16).

This situation is observed in the study area, because the population according to (CONEVAL, 2018), located Tochimilco in 2010-2014 in poverty level to 78.5% of the population, which is subdivided into extreme poverty 30% and moderate poverty 47.6%. The vulnerability for social deprivation of this population is 18.9% and by income is 1.5% for which there is a large migration to the interior of the country and beyond to improve living conditions, their livelihood and the maintenance of their homes.

The vernacular dwellings in Tochimilco are generally rectangular constructions of 4 meters wide by 8 meters long and irregular dwellings approach these dimensions. They are built with volcanic stone foundations, adobe walls, tile roofs, sheet, wood and tile.

The construction of adobe with roofs of wood and tile is a common practice in the State of Puebla as a rational way of using local materials that allow comfort in indoor temperatures in homes (GONZÁLEZ, 2016, page. 2).

The most representative material of these dwellings is adobe; the word adobe comes from the Egyptian "thobe", translated into Arabic as "ottob", extended in the Mediterranean by the Roman Empire, arrived in Spain by Muslim interventions (RAMÍREZ, 2011, pages. 30-31). With the arrival of the Spaniards in Mexico the constructive tradition was maintained because the inhabitants had an extensive constructive tradition. In Mexico there is a wide sample of this material in many pyramids located in the country were used adobe bricks made with sun-dried clay. The adobe buildings are threatened by water, wind, seismic effects, animal attack, the growth of wild flora and incompatibility with materials such as concrete and steel. (RAMÍREZ, 2011).

The main causes of deterioration of adobe and vernacular architecture are the environmental (climatic and air pollutants), biological (bacteria, fungi, lichens, algae, mosses, plants and animals) and anthropic (vandalism, overexploitation of structure, accidents), interventions and lack of maintenance (MARTÍNEZ, MARTÍN, & CARO, 2003)

Humidity is the main cause of deterioration in the vernacular dwelling of Tochimilco, because it promotes the development of bacteria, fungi, lichens, algae, mosses, whose spores are introduced by the wind into the cavities and the nutrients serve to feed plants, insects, birds or rodents that degrade the material. Also, the grass and roots of trees seek moisture by fissuring the walls or creating cracks through which the water leaks leaving cavities where animals seek refuge (PEÑA, 1997, page. 87).

Regarding anthropic actions acts of vandalism are a clear indicator of the social exclusion that takes place in cities, no matter how much they are condemned and criminalized as brutal and illogical acts (JORDI, 2009, pages. 4-5).

In Tochimilco there is no vandalism and the dwellings, although they are not maintained, are not affected by this emergent phenomenon of the cities, as the population has cohesion and vandalism does not occur in the community.

On the other hand, the overexploitation of the structure is presented when building on top of the building, it is presented in two ways: it is placed, chains, castles and reinforced concrete roofs modifying the building and in very tall constructions the height is divided with independent structures or embedded to the walls and this overloads the vertical elements. The intervened buildings modify their structural composition or damage the adobe walls by the elimination of beams, holes are generated for installations or the placement of incompatible materials that cause pushes that weaken the adobe and the lack of maintenance is evident.

The level of poverty in Tochimilco does not allow the maintenance of its buildings, deteriorating inexorably and in the case of migrants they bring with them resources that apply to the development of the countryside and buildings. However, they bring Tochimilco concepts of modernity that cause the transformation of the dwellings with incompatible techniques or the total demolition of the vernacular dwellings.

Changes in temperature coupled with humidity promote the disintegration of the material, caused by the contraction and expansion of the adobe due to the effects of the combination of solar radiation and cold. It is because the clays with the contact with the water expand and with the action of the sun they contract causing cracks or scabs (PEÑA, 1997, page. 86).

Tochimilco is a region with climatic changes throughout the day; the water absorbed by the adobe reaches the freezing point and the strong heat of the morning contracts the adobe causing superficial cracks in the walls. The wind affects the adobe because it eliminates the loose material leaving small cavities where spores and soluble salts are deposited.

To avoid the absorption of moisture from the subsoil in Tochimilco the constructions are above ground approximately 60 centimeters; however in relatively new constructions they are placed at ground level and the walls are damaged from their base and that constant humidity deteriorates the building.

The intense rain in the buildings where there are no eaves wash out the material and the puddles cause them to moisten the base of the wall appearing fluorescent when the water or cement in the mortars contain soluble salts. The cement has displaced the quick lime as a material of the mortars used in joints or in coatings affecting the adobe with the soluble salts of the cement.

Tochimilco is located in a seismic and volcanic zone, being close to the Popocatepetl volcano it has constant small earthquakes and with earth movements it is fast (GUTIÉRREZ, 2014, page. 137).

The constant emissions of ash, remain in the atmosphere for a long time and accumulates in the roofs and substances of the ash that weaken the building materials (MARTÍNEZ & GÓMEZ VÁZQUEZ, 2006, page. 168).

The effects of earthquakes on adobe buildings can be serious, since the dynamic loads modify the cohesion between the particles of the adobe blocks. It is common that these walls are cracked in the corners of the dwelling and the structural work of the whole is lost and before the earthquake each element absorbs independently to these telluric movements. Situation that could be observed in the earthquake of September 19, 2017.

The earthquake of September 19, 2017 in Tochimilco severely affected historical buildings and a few vernacular dwellings (figures 7, 8, 9 and 10).



Figure 7 Aerial view of historic dwellings damaged by the earthquake of September 19, 2017
Source: Vázquez, August 2018



Figure 8 Bending perpendicular to the wall plane. Cracking in the intermediate height and additional vertical cracking, frequently occurs in long walls caused by the earthquake of September 19, 2017
Source: Vázquez, August 2018



Figure 9 Flexion perpendicular to the plane in the unconfined corners of loose walls, or in corners not effectively connected with the transverse walls, caused by the earthquake of September 19, 2017
Source: Vázquez, August 2018

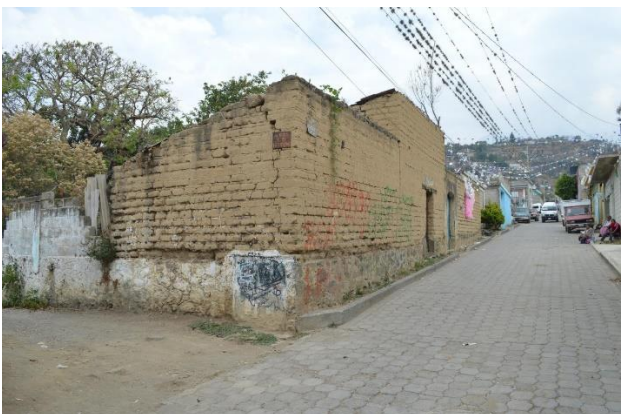


Figure 10 Flexion perpendicular to the plane in the unconfined corners of loose walls, or in corners not effectively connected with the transverse walls, caused by the earthquake of September 19, 2017
Source: Vázquez, August 2018

5. Conclusions

The vernacular architecture is not recognized by the community of experts in the area of knowledge, because it is built by the inhabitants without the advice of the architects. Although various authors and architects have supported the rescue of vernacular architecture; the efforts, although large, have not been enough to stop the disappearance of the adobe architecture.

This from the main objective, to integrate the quality of life for its inhabitants, attending to vulnerable groups; in granting, improving, conserving care for the environment, according to their daily activities in the local practices of the region within the framework of sustainability, contributing to the strategic applications in the formation of the implementation of pertinent actions to their shelter and recate.

In relation to the implications of the deterioration of the vernacular dwelling, it was observed that the natural causes are the most important in their permanence or disappearance as the population incorporates the constructive techniques that they consider can cope with the natural conditions.

In addition, being material economically accessible to the inhabitant living in poverty, allows him to erect with his scarce resources a dwelling that he considers worthy and the result of his individual and collective effort because the tequio still prevails.

This is in recognition of the implementation of a system adapted to the environmental conditions, in order to preserve and execute prosperous dwellings friendly to the environment: in terms of security, shelter; that is adapted to the living conditions and accessible materials within the region; in adequate use of its non-polluting resources or of destruction to the rural natural contexts and with the use of the labor of its inhabitants that minimizes the economic impact to the access of a dwelling.

This architecture in Tochimilco is put to the test by the constant telluric and volcanic earthquakes; the vernacular architecture in Tochimilco had some affectations in the earthquake of September 19, 2017, but the historical architecture presented severe damages by the natural effects.

For all the above it is considered that to maintain the architecture of adobe is necessary on the one hand to recognize the vernacular architecture as a viable architecture, the result of community participation, product of tradition and cultural value. On the other hand, it is recommended to consider it in the development plans of dwelling, because the current programs do not imagine this within their development strategies because they consider it inefficient to weather and seismic events.

In priority to the attention of the community in determining the actions of shelter, post-earthquake rescue and evaluation and intervention owed to the constructive system that determine the conditions of security, habitability and resilience on said historical and vernacular buildings. In recognition as a relevant production concept of your receipt or continuous maintenance.

However, as it has been shown the dwelling vernacular in Tochimilco remains standing despite the conditions of vulnerability. As for the historical dwellings they have problems due to the age of the materials and the lack of maintenance and inadequate practices of substitution of materials, but these are aggravated by the abandonment in which they find themselves.

All of the above, establishes the need to create strategies for the conservation of this type of architecture that includes recognition, preventive actions against the risk of loss due to unexpected processes and the capacity of its inhabitants to overcome these adversities. As well as sensitization and training both of architects and of the population for the maintenance of their dwellings and practices of intervention in maintenance programs, and thus face with mechanisms of adaptability in the face of the adverse circumstances that they face.

6. References

ABC. (2016). DDefinición de Pobreza » Concepto en Definición ABC. Obtenido de Diccionario ABC: <http://www.definicionabc.com › Social>

ÁLVAREZ, A. (2012). Tesis Doctorado en proyectos arquitectónicos: Espacios en transición: Autoproducción de la casa urbana en Mérida, México. Barcelona: Universidad Politécnica de Catalunya.

CONEVAL. (6 de Marzo de 2018). Estimaciones del CONEVAL con base en el MCS-ENIGH 2010 a 2018. Obtenido de https://www.coneval.org.mx/Medicion/MP/Paginas/AE_pobreza_2014.aspx

DÍAZ, R. (2009). Desarrollo sustentable, oportunidad para la vida. Culiacán: Mc Graw Hill.

ECHEVERRÍA, B. (2007). Un concepto de modernidad. Obtenido de Un concepto de modernidad 1 - bolivare.unam.mx: <http://www.bolivare.unam.mx/ensayos/Un concepto de modernidad.pdf> • Archivo PDF

GUERRERO, L. F. (2008). ICOMOS informe mundial 2006/2007 sobre monumentos y sitios en peligro. MEXICO: La pérdida de la arquitectura de adobe en México. En ICOMOS, HERITAGE AT RISK, Patrimonio en Peligro (pages. 112-114). Alemania: Published by E. Reinhold-Verlag, Altenburg.

GUTIÉRREZ, C. A. (2014). Guía básica para la elaboración de Atlas Estatales y municipales de peligros y riesgos: Fenómenos geológicos. México: Secretaría de gobernación y Centro Nacional para desastres.

INAFED. (1997). Puebla - Tochimilco. Obtenido de Enciclopedia de los municipios y delegaciones de México: <http://www.inafed.gob.mx/work/enciclopedia/EMM21puebla/municipios/21188a.html>

INEGI, Instituto Nacional de Estadística, Geografía e Informática. (2010). Coordinación General de Análisis de Dwelling y Prospectiva con datos de los Censos de Población y Dwelling 2000 y 2010. México: Instituto Nacional de Estadística, Geografía e Informática.

JORDI, M. (2009). El vandalismo como fenómeno emergente en las grandes ciudades andaluzas. Sevilla: Centro de Estudios Andaluces y Consejería de La Presidencia de Sevilla.

MARTÍNEZ, A., & GÓMEZ, Á. (2006). Metodología para la evaluación de peligros por cenizas volcánicas. En C. A. Gutiérrez Martínez, Atlas Nacional de riesgos: Guía básica para la elaboración de Atlas Estatales y Municipales de peligro y riesgos. Primera edición (pages. 167-175). México: Secretaria de Gobernación, Centro Nacional de Prevención de Desastres.

MARTÍNEZ, J., MARTÍN, J., & CARO, J. (2003). Monografía sobre el análisis estructural de construcciones históricas de fábrica., Evaluación estructural de puentes arco de fábrica. Madrid: Departamento de Mecánica de los Medios Continuos y Teoría de Estructuras, Universidad politécnica de Madrid.

MOYA, L., AGUDO, A., CANDELA, C., LAJARA, R., SAINZ, J., & SALVADOR, J. (2014). Estudio de la tipología arquitectónica urbanística en el medio rural de la provincia de Valladolid. Valladolid: E.T.S. de Arquitectura de Valladolid y Grupo Terra.

MONJE, C. A. (2011). Metodología de la investigación cuantitativa y cualitativa. Neiva: Universidad Sur Colombiana.

PEÑA, D. (1997). Adobe, características y sus principales usos en la construcción. Puebla: Instituto tecnológico de la construcción.

RAMÍREZ, M. Á. (2011). Deterioro y estabilización del adobe. México: Instituto politécnico Nacional.

RAPOPORT, A. (1972). Dwelling y cultura . Barcelona: Gustavo Gili.

TORRES ZÁRATE, G. (27 de Abril de 2014). Arquitectura vernácula, fundamento en la enseñanza de sustentabilidad. Obtenido de http://sistemamid.com/panel/uploads/biblioteca/2014-04-27_01-19-4998077.pd

Instructions for authors

[Title in Times New Roman and Bold No.14 in English and Spanish]

Surname (IN UPPERCASE), Name 1st Author†*, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor

Institutional Affiliation of Author including Dependency (No.10 Times New Roman and Italic)

Institutional mail No.10 Times New Roman and Italic

ID 1er Autor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Autor ID - Open ID) y CVU 1er Autor: (Becario-PNPC o SNI-CONACYT) (No.10 Times New Roman)

ID 1er Coautor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Autor ID - Open ID) y CVU 1er Coautor: (Becario-PNPC o SNI-CONACYT) (No.10 Times New Roman)

ID 2do Coautor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Autor ID - Open ID) y CVU 2do Coautor: (Becario-PNPC o SNI-CONACYT) (No.10 Times New Roman)

ID 3er Coautor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Autor ID - Open ID) y CVU 3er Coautor: (Becario-PNPC o SNI-CONACYT) (No.10 Times New Roman)

(Report Submission Date: Month, Day, and Year); Accepted (Insert date of Acceptance: Use Only ECORFAN)

Abstract

Objectives, methodology

Contribution

(150-200 words)

Keywords

Indicate (3-5) keywords in Times New Roman and Bold No.11

Abstract (In Spanish, 150-200 words)

Objectives

Methodology

Contribution

Keywords (In Spanish)

Indicate 3 keywords in Times New Roman and Bold No. 10

Citation: Last name -First name (IN UPPERCASE) -1st † Last name -First name (IN UPPERCASE) -2nd Author's name. Paper Title. Title of the Journal. 2015 1-1: 1-11 - [All in Times New Roman No.10]

† Researcher contributing as first author.

Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

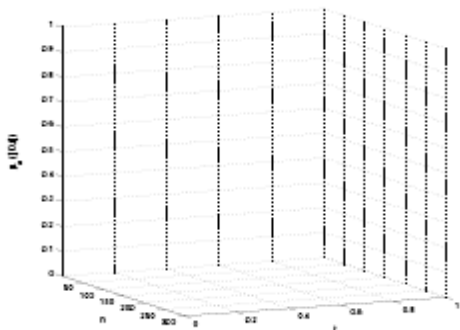
[Title No.12 in Times New Roman, single spaced and Bold]

Products in development No.12 Times New Roman, single spaced.

Including graphs, figures and tables-Editable

In the article content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

[Indicating the title at the bottom with No.10 and Times New Roman Bold]



Graphic 1 Title and Source (in italics).

Should not be images-everything must be editable.

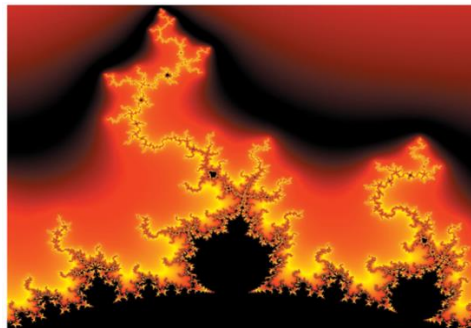


Figure 1 Title and Source (in italics).

Should not be images-everything must be editable.

Table 1 Title and Source (in italics).

Should not be images-everything must be editable.

Each article shall present separately in **3 folders**:
a) Figures, b) Charts and c) Tables in .JPG format, indicating the number and sequential Bold Title.

For the use of equations, noted as follows:

$$Y_{ij} = \alpha + \sum_{h=1}^r \beta_h X_{hij} + u_j + e_{ij} \quad (1)$$

They must be editable and number aligned on the right side.

Methodology

Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

Results

The results shall be by section of the article.

Annexes

Tables and adequate sources thanks to indicate if they were funded by any institution, University or company.

Conclusions

Explain clearly the results and possibilities of improvement.

Instructions for authors

References

Using APA system, should **Not** be numbered, either bulleted, however, if necessary, will be because reference number or referred to in any of the article.

Data Sheet

Each article must submit your dates into a Word document (.docx):

Journal Name

Article title

Abstract

Keywords

Article sections, for example:

1. *Introduction*
2. *Description of the method*
3. *Analysis from the regression demand curve*
4. *Results*
5. *Thanks*
6. *Conclusions*
7. *References*

Author Name (s)

Email Correspondence to Author

References



ECORFAN®

Spain, Madrid _____, _____ 20_____

Originality Format

I understand and agree that the results are final dictamination so authors must sign before starting the peer review process to claim originality of the next work.

Article

Signature

Name



ECORFAN®

Spain, Madrid _____, _____ 20_____

Authorization form

I understand and accept that the results of evaluation are inappealable. If my article is accepted for publication, I authorize Ecorfan to reproduce it in electronic data bases, reprints, anthologies or any other media in order to reach a wider audience.

Article

Signature

Name

ECORFAN-Journal Spain

“The challenge for universities: Fostering a innovation culture through the promotion of entrepreneurship”

GONZALEZ-GARCÍA, Guadalupe, BECERRIL, María Luisa, MALDONADO, Patricia and SALGADO-VARGAS, Christian Karel

Universidad Autónoma del Estado de México

“Belief system of students of a quality postgraduate course in educational research”

MANIG-VALENZUELA, Agustín, VÁLDES-CUERVO, Ángel Alberto, GUTIÉRREZ-DUARTE, Carlos Jesús and MADUEÑO-SERRANO, María Luisa

Instituto Tecnológico de Sonora

“The journey of the scientific researchers of the Universidad Autónoma de Sinaloa for the recognition of their professional work”

SOTO-DECUIR, María Guadalupe, MAZO-SANDOVAL, Isabel Cristina and MAZO-SANDOVAL, María Concepción

Universidad Autónoma de Sinaloa

“Analysis of the results of public investment applied to federated sport”

CHAVEZ-TORRES, Rosa del Carmen, PALACIOS-MELÉNDEZ, José Giovanni, CHAVEZ-GONZABAY, Leonardo Augusto and CEDEÑO-PINOARGOTE, Jairo Manuel

Universidad Estatal Península de Santa Elena

“Causes of the disappearance of vernacular housing in Tochimilco, Puebla”

VÁZQUEZ-TORRES, María del Rayo, CASTILLO-REYES Alberto, Rosendo and NAVARRETE-GARCÍA, Mónica

