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RINOE Journal-Microeconomics

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Presentation of the content

In the first article we present *Scenario of the competitiveness of MSMEs in Cuetzalan del progreso Puebla* by BIVIANO-PÉREZ, Emma & SOSA-LARRAINZAR, Evelyn with adscription in the Universidad Tecnológica de Puebla, in the next article *Teaching materials using ICT for the Know-How of SMEs´ acquisition: A new model* by ROLDÁN-OROPEZA, Norma Angélica, LIZARDI-ROJO, Verónica and BOLAÑOS-ORTEGA Rosalba with adscription in the Universidad Tecnológica de Puebla, in the next article *Financial Analysis of a Poultry Production Microenterprise* by PÉREZ-ROSAS, Leonardo, MIRANDA-REYES, Susana, MARTÍNEZ-REYES, Silvestre and GUERRERO-MARTÍNEZ, Adulfa with adscription in the Universidad Tecnológica de Izúcar de Matamoros in the next article *Evaluation of the quality in the service of tourist products in the magical towns of Yucatan* by ROBLEDA-SÁNCHEZ, María Guadalupe, PEREZ-CONDE, Enrique and CENTURION-CANTO, Erick with adscription in the Universidad Tecnológica del Poniente.

Content

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Scenario of the competitiveness of MSMEs in Cuetzalan del progreso Puebla

Escenario de la competitividad de MiPyMes en Cuetzalan del progreso Puebla

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Abstract

In Mexico, seems impossible to speak of competitiveness in micro, small and medium companies since it thinks that to be located in this rank by determined characteristic, they will not for a long time remain in the market; nevertheless given the importance that they have for National economy, the detection of weak points in them is essential since this one will be the base to implement the correct measures that help to their fortification, increase of their competitive level and therefore its survival before this globalizado world. In the present work some inherent aspects to the enterprise competitiveness as it bases to know the scene that prevails in the organizations micro, small and medium, established are approached in the locality of Cuetzalan of the Progress, being this one of regions impelled 2002 by the one of the Program of Magical Towns in the State of Puebla and before the threat that represents opening of new tourist centers of the same nature.

Enterprise development, Competitiveness, MSMEs

Resumen

En México, parece imposible hablar de competitividad en la micro, pequeñas y medianas empresas ya que se piensa que por ubicarse en este rango por determinadas características, no permanecerán por mucho tiempo en el mercado; sin embargo dada la importancia que tienen para la Economía Nacional, la detección de puntos débiles en ellas es esencial ya que ésta será la base para implementar las medidas correctas que coadyuven a su fortalecimiento, incremento de su nivel competitivo y por lo tanto su supervivencia ante este mundo globalizado. En el presente trabajo se abordan algunos aspectos inherentes a la competitividad empresarial como base para conocer el escenario que prevalece en las organizaciones micro, pequeñas y medianas, establecidas en la localidad de Cuetzalan del Progreso, siendo ésta una de las regiones impulsadas 2002 por el del Programa de Pueblos Mágicos en el Estado de Puebla y ante la amenaza que representa apertura de nuevos centros turísticos de la misma naturaleza

Desarrollo empresarial, Competitividad, MSMEs

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Introduction

In the competitive environment demanded by globalization, all organizations are immersed, micro, small, medium and large, each of them with an important participation in the economy of the country. As stated by current statistics; The role of the companies in the different sectors, create an economic dynamic that as a whole forms a platform that generates diversity of satisfiers and likewise sustains an important labor force. It is important to mention that in the census carried out in 2009, interesting graphics are reflected, among which it stands out that of the total of 1 367 287 economic units of Services, 94.7% were micro-enterprises (MiPE's), which in total employed personnel contributed 43.7% of the total (INEGI, 2009).

On the other hand, the micro companies (of up to 10 people) represented 92.5% of the economic units of the total sector, 23.2% of the total employed personnel, the aforementioned information, reflects the importance of the companies of low magnitude and the impact both in local economies as well as in larger economies. However, although these organizations are huge, they still have serious difficulties to survive and develop in an increasingly competitive and demanding market. Considering their operational context, they are often at a disadvantage both in terms of resources and organizational development capacity. Since this is a problematic characteristic of growing organizations, a development strategy that strengthens its structure and operation becomes necessary. The present article is divided into two sections; Relevant aspects for the competitiveness in the MSMEs and strategic planning in the MSMEs considering these aspects as a base to measure the level of competitiveness in any organization.

Description of the method

The results presented are derived from an exploratory, descriptive qualitative research, using a random sample for convenience and the collection of data in situ from the specific context of the MSMEs established in the municipality of Cuetzalan del Progreso, considering the specific aspects that influence in the competitiveness of micro, small and medium enterprises and establishing as analysis variables; the aspects that influence competitiveness and strategic planning.

Development

Aspectos relevantes para la competitividad en las MSMEs

Based on the fact that the life of a SME is very short, in this regard, the Business Coordinating Council (CCE) announced that:

> *"75% of small businesses cease to exist during the first five years of life, and very few can take the step to become medians or companies of accelerated growth, an element that in other countries has been key to progress"* (Cruz, 2013)

The failures are applicable to the lack of competitiveness in the management of their companies, one of their factors is the lack of direction to maintain and not raise their level of customers and have no solid foundation or growth of the company.

Strategic planning in the MSMEs

As an important factor to be considered to be a competitive organization is the solidity in the application of formal administrative techniques, which in case of not existing, generate lack of control in the same organization, in relation to this factor Lefcovich, (2004), returns to Small businesses and the causes of their failures mentioned:

> *"The world today is not as stable as it was yesterday and will be less tomorrow. Operating a business will be more difficult in the future, unless you take care of it, planning, organizing, directing, controlling effectively. For those who want to survive in a small business, not only hard work is necessary, but also doing it intelligently "*

He described the competitive strategy, as the offensive or defensive actions of a company to create a defensible position within an industry, actions that were the response to the five competitive forces that the author indicated as determinants of the nature and degree of competition that surrounded to a company and that, as a result, sought to obtain a significant return on the investment. In studies conducted by Velázquez, (2006), he considers that using tools such as organizational diagnosis, provides information to the organization about the current situation they are going through and based on the results they derive, based decision-making.

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In turn Lefeovich, (2004), mentions that the low probability of survival of small and medium enterprises is due to ignorance of different strategic factors that should be handled, as well as the advantages and disadvantages in the management of a small business and the benefits to implement a formal administrative process consisting of planning, organizing, directing and knowing how to effectively control all the processes that take place in a going concern, as well as the objectives, reviewing their strategies, aligning them in a way that they serve as reference during their functioning.

Emphasizing the formality of the processes it is important to return to the position of Porter (1980) who describes the competitive strategy, as the offensive or defensive actions of a company to create a defensible position within an industry, actions that were the response to the five competitive forces that the author indicated as determinants of the nature and degree of competition that surrounded a company and that as a result, sought to obtain a significant return on investment.

He described the competitive strategy, as:*"The offensive or defensive actions of a company to create a defensible position within an industry"*

These actions are determinants of the nature and degree of competition that surrounds a company and as a result, it seeks to obtain an important return on the investment.

In turn Porter (1980), mentions three generic strategies that can be used individually or together, to create in the long term that defensible position that surpasses the performance of competitors in an industry.

These three generic strategies are: *The leadership in low total costs.* It refers to a very popular strategy in the 70's, due to the deep-rooted concept of the experience curve, which consisted in keeping the cost lower compared to competitors and achieving a high volume of sales, since she hoped that this would lead her to obtain profits above the industry average and protect her from the five competitive forces.

The differentiation. It is the second strategy that consisted in creating the product or service something that was perceived throughout the industry as unique.

In some way it was considered as the protective barrier against competition due to brand loyalty, this characteristic generated a lower sensitivity to the price.

Focus. The third strategy consisted of concentrating on a specific group of customers, a segment of the product line or a geographic market. It was based on the premise that the company was able to serve a narrower strategic objective more efficiently than competitors with broad coverage.

Porter's strategies represented alternatives, to face the competitive forces since the company that failed to develop its strategy in at least some of these options was trapped in an extremely poor strategic position representing a company with a high price for products perceived as low quality, which is not healthy for any organization.

Surrounding this idea, the five competitive forces mentioned by Porter (1980) are:

- *The threat of entry of new competitors.*
- *The threat of substitute products or services.*
- *The bargaining power of buyers.*
- *The power of provider's negociation.*
- *The rivalry between competitors.*

Complementing the analysis of the market as a core point in competitiveness addresses the role of marketing in the operation of the MiPE's, in this regard it is stated that the relationship of exchange between companies and the market is developed within a system commercial in which there are a number of non-controllable factors for the various organizations and these constitute the environment and influence the behavior of the market, the marketing decisions of the company and, ultimately, condition the development of the exchange relationship (Santesmases Mestre & Valderrey Villar, 2013).

Some of the environmental factors are closer to the exchange relationship and their influence is more immediate, this is the case of suppliers, intermediaries, competitors and other commercial institutions that facilitate or promote commercial activity or ensure its development normal and are elements belonging to the *micro-environment*.

On the other hand, there are other elements that have less immediate influence, affecting not only commercial activity, but also other human and social activities such as demographic, economic, cultural, social, legal, political, technological and environmental changes environment that affect both commercial activity and other activities and aspects of life and society, these factors constitute the *macro-environment*.

Tackling a more point of view exposes what Sosa, (2014) states that strategic planning can be as simple or as complex as needed in the company, and proposes a very simple model that will make strategic changes and continuously improve an organization and summarizes them in:

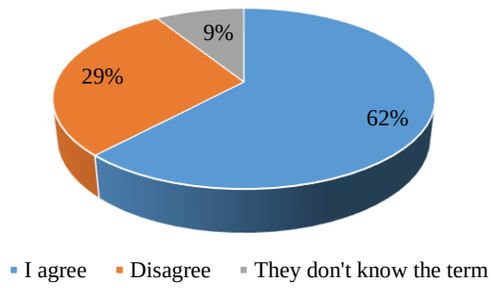
– To know the organization perfectly, since any change can modify its strengths or accentuate undetected weaknesses.
– Perform a diagnosis of the organization based on three points, its market, products and technology.
– Solve detected weaknesses, since you can not make projections in a company with weaknesses.
– Design a vision for at least three years cosiderando aspects such as; market, customers, products and suppliers.
– Establish concrete actions to achieve the projected.

Returning to what Sosa (2014) proposes, aspects of great importance are identified to achieve a good competitive level and for the purposes of this paper, some aspects that are closely related to the position of the MSMEs within the market under the assumption of that it is necessary to reduce its low competitive level, through the use of administrative and marketing techniques that help to increase competitiveness and achieve comprehensive business development.

Results

Aspects that influence the competitiveness of MSMEs

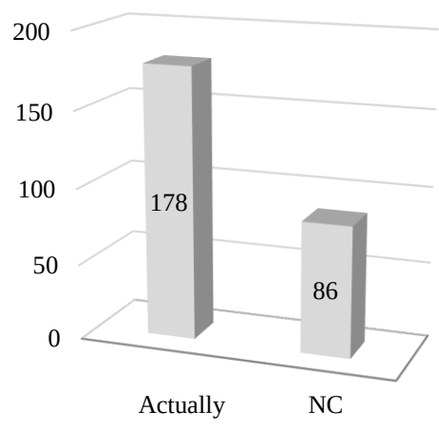
Quality and innovation in the product: In the current market with a high degree of competition it is necessary to develop characteristics in them that convert them into a competitive product, of course with the aim of expanding their coverage for this work one of the aspects to consider is how safe it is for the consumer.



Graphic 1 Importance of the security of the product offered
Source: Own Elaboration compiled in field research (2016)

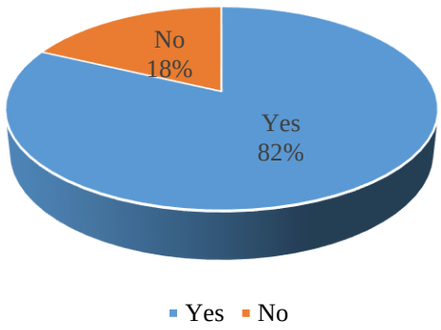
When analyzing the importance that the interviewed businessmen grant to sell safe products for their clients, it was found that, 62% (164 interviewees) that consider their products to be safe for their clients and evaluate the potential risks they represent, this is superior to the average, and considering this aspect as a factor of product quality is a good indicator for the selected companies, however, there is still 29% (77 interviewed) who are in disagreement and strongly disagree on the importance of caring this element and even more serious; 9% (23 interviewed) did not answer the question because it does not know its meaning see graphic 1.

Another element that indicates the level of competitiveness is the improvement in the productive processes, since this implies an innovation either in the products or in the same processes that detonates directly in the costs. Regarding the technification of the production process, the entrepreneurs were asked about the situation in which they operated, obtaining the results shown in graphic 2.



Graphic 2 Technification of the production process
Source: Own Elaboration 2017, field research

Given that the majority of products offered to the market, MSMEs, established in Cuetzalan del Progreso have the characteristics of being "handicrafts", it is identified that, 178 interviewees (67%) indicate that the elaboration of their products is currently manual (sophisticated technology is not required, much less mechanized apparatus), this result is above the average; however, 33% (86 interviewees) are unaware of the analyzed concept or had not considered it see graph 2.



Graphic 3 Growth expectations
Source: Prepared by the authors 2016

The study shows that 82% of entrepreneurs, have planned to grow their business during the following year, even though the growth trend is very slow, some expressed that their sales are considerable, and expect this item to increase in to a greater degree, some businessmen, mentioned that their sales are not as favorable as other years; and yet the remaining 18% expect a drop in sales for this year and their growth expectations are low, due to the economic circumstances that have prevailed and are not very encouraging as shown in Figure 3.

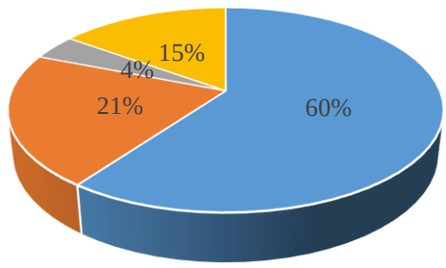
From the above it is clear that all entrepreneurs, although empirically, make forecasts of growth of their business, considering the various factors they perceive, and in some way benefit or affect their operations.

Likewise, most of them state that there is an increasing number of visitors to the place, so they trust that each time their business will improve in many ways, but they do not have solid foundations to ensure that this forecast is achievable.

Strategic Planning in MSMEs

Distribution processes

Being the Sales Process one of the axes for companies to operate properly, it is important to foresee, integrate, organize and control all the activities inherent to it and to do it optimally, the necessary resources must be considered this administrative phase, the results shown in graphic 4 were perceived.

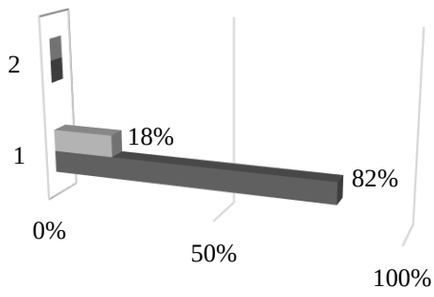


Graphic 4 Planning of customer services
Source: Prepared by the authors 2016

60% of the surveyed companies carry out processes in advance to serve the tourist and local customers, and with this expects to be more competitive, and in turn expects to promote a greater influx of visitors in the area, 21% state that only a few Sometimes it takes time to carry out some planning activities such as larger spaces to serve a larger number of customers, or diversify some products to be more attractive to the customer, or simply buy more merchandise since it assumes that their sales will increase by themselves, but have no idea how much they will grow. On the other hand, it was identified that 15% definitely does not anticipate processes beforehand since their sales are only for local customers and their operational needs do not vary, which is in some way understandable, however, there is a 4% that has no knowledge In this regard, and also the importance of an administrative control and its importance in the prosperity of your business.

Conservation of clients

For economic entities, it is an important factor to have a stable sales and assuming that the tourism activity is not continuous and depends on certain seasons in the year, it was considered important to analyze the opinion regarding the behavior or preference of type of clients and the results are seen in graphic 5.



Graphic 5. Conservation of local clients
Source: Own Elaboration 2015

Analyzing the answers given, 82% of businessmen, express that sales to local customers are of the utmost importance since they are constant customers and maintain the operation of their businesses until the seasons of influx of visitors arrive.

18% of the surveyed businessmen state that their sales do not depend on visitors, so their income does not vary during the year.

The world is not as stable as it was yesterday and will be less tomorrow. Operating a small business is going to be more difficult in the future, unless you take care of it, planning, organizing, directing and controlling it effectively. For those who pretend to survive in a small business, not only hard work but also smart work is necessary.

In order to succeed, they must continually review the validity of the business objectives, their strategies and their mode of operation, always trying to anticipate the changes and adapting the plans in accordance with said changes.

Those who create small companies do so by ignoring the scant chances of survival or in spite of them. Experience shows that 50% of these companies go bankrupt during the first year of activity, and not less than 90% before five years. As revealed by the statistical analyzes, 95% of these failures are attributable to the lack of competence and experience in the management of companies dedicated to the specific activity in question.

In order to determine the degree of competitiveness of the organizations studied, several criteria established by Sosa (2014) are taken as a reference, and to determine the degree of competitiveness that prevails in the region studied.

#	Criterion: **From the market**	Comply	Fails
1	What is the sales level compared to the budget?		Unknown
2	¿Conserva a sus clientes?	SI	
3	Does it attract new clients: the number of clients it serves has grown?	SI	
4	Are overhead expenses within budget?		Unknown
5	Do you control the inventory level of the agreement with the budgeted amount?		Does not control
	Of your products		
6	Are your products sold well?	Si	
7	Are there claims from your internal and external clients?		Unknown
8	Do you record the claims of your clients?		Does not apply
9	What are the main claims?		Unknown
10	Do you create new products?		No
11	How long have I created a new product?		Does not control
	Of technology		
12	Do you innovate your products?	Si	
13	Do you take full advantage of your materials and raw materials?	Si	
14	Do your production costs have the correct impact on your total costs?		Unknown
15	Do you have lost times in production?		Unknown

Table 1 Level of competitiveness
Source: Own Elaboration (2017), field information

Analyzing the results of table number 1, it is obtained that in general the MSMEs established in the locality of Cuetzalan del Progreso on a scale of 1 to 10, obtain a very low level of productivity, this being 3.3 points, since they only meet with 5 criteria of the 10 proposed for evaluation.

Acknowledgement

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Conclusions

Given the panorama of the companies analyzed, it is concluded that, in order to achieve development and maturity, it is essential that as a first instance in their administrative models they include relevant strategies to raise their productivity, total quality and competitive advantages, with respect to the value chain that work on the innovation of their products and services to be more competitive and thus be placed in high standards and achieve a position within the market.

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Teaching materials using ICT for the Know-How of SMEs´ acquisition: A new model

Materiales didácticos usando TIC para la adquisición del *Know-How* de PYMES: Un nuevo modelo

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Abstract

The teaching materials are very important into the Small and medium-sized enterprises (SMEs or PYMES in Spanish), their use can increase the employees and company productivity; impacting the SMEs competitiveness in the global market by facilitating business processes. In this paper, a new model for the generation of teaching materials for SMEs is introduced; Our model is based on an applied survey to 81 graduated students from four Technological Universities from Puebla State. These students worked for various companies, so the results of an exit poll for identifying the necessities of teaching materials into the enterprises in this state. The main characteristic of the proposed model is that it can produce teaching materials in a semiautomatic or semi-autonomous learning way (minimum intervention of a teacher or instructor) taking advantage of the training that the students get while working in the enterprises, leads to let them to know in short time, the internal productive processes of the companies.

Know How, Teaching materials, PYMES, ICT´

Resumen

Los materiales de enseñanza son muy importantes en las PYMES, su uso puede aumentar la productividad tanto de los empleados como de la empresa; impactando su competitividad en el mercado global y facilitando los procesos de negocios. En este trabajo, se presenta un nuevo modelo para la generación de materiales de enseñanza para PYMES. Nuestro modelo se basa en los resultados de una encuesta de salida que se aplicó a ochenta y un estudiantes de cuatro universidades Tecnológicas del estado de Puebla, quienes realizaron su estadía en diferentes empresas, los resultados de dicha encuesta permitieron identificar las necesidades de materiales de enseñanza en las empresas de Puebla. La principal característica del modelo propuesto es que puede producir materiales para el aprendizaje de forma parcialmente autónoma (mínima intervención de un profesor o instructor) aprovechando la capacitación y que los discentes reciben durante el proceso de estadía en las empresas, que les permite en poco tiempo conocer los procesos internos y productivos de la empresa.

***KnowHow*, MaterialesDidácticos, PyMES, TIC**

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Introduction

The emergence of the knowledge society exposed small and medium-sized enterprises (SMEs) to a new economic and technological prototype where flexibility and creative innovation becomes essential to stay on the margin of competitiveness.

Social networks serve as accelerators when sharing information, the user becomes the creator of content; despite this, Dess and Lumpkin (2003) argue that the important thing for the company is not the Internet technology itself, but the real use that is made of it to get profitable transactions.

The innovative capacity of SMEs depends as much on the steps of learning as on the organization of information flows; this capacity implies the creation and adoption of new products, processes and organizational techniques; it is a series of cumulative, interactive and non-linear steps (La Rovere, R., & Hasenclever, L., 2003). For Schumpeter, "the most competitive firms are those capable of permanently introducing technical and organizational innovations". The above refers to the fact that if the company makes investments in the factors that increase the innovative activity seeking to do things differently, it can achieve innovation and develop learning capabilities.

One of the questions that we have raised for this study is to know if employees can adapt to these new changes arising in the industry, using innovation technology for both processes and procedures.

The knowledge and the individual capacity to channel the information in an efficient way, are vital to provide the company with a commercial difference (Cope, 2011), this knowledge management can be done through materials and didactic resources.

As pointed out by García and Sánchez (2013) "It is possible to make an investment in the most advanced ICTs and not take advantage of them to position themselves strategically or obtain operational efficiency", in any case, this limits the capacities of the productive processes, which would be reducing their competitiveness. In addition to this, the risk that only a small group manages this technology is latent.

When a new worker is trained in the use of ICT tools or processes, resources, human capital or inputs are invested, this task is repeated in the event that there is a change of personnel; therefore, it is necessary to know if the company has induction courses or other didactic support materials that can facilitate the training of personnel, including the business philosophy, its internal policies and, where appropriate, how to perform their daily tasks. Although ICT is a valuable tool for the manipulation of information, both the experience and the expertise of the professional responsible for this particular task or activity that he develops and learns in the daily processes of his work are fundamental. Therefore, making a balance between the needs for technological training and those related to the company itself is of vital importance when planning investment costs. There is the question of knowing if those workers who leave the company document their processes or procedures for the one that will replace their work. It is important that the employer does not discard this task due to the impact it can cause on the learning curve of the future employee.

The innovative capacity of SMEs may vary since each company has different characteristics due to cumulative and localized processes derived from scientific, technical and practical knowledge. It is, through the technical experience of the workers, how integral knowledge is built within the company, with the systematic development of technologies and know-how according to the relationships with those who contribute capital goods and inputs, as well as of the contributions that could be received not only from clients, but from some universities and research centers.

The know-how of a firm includes the context of its workforce: language, knowledge of the use of technology adapted to its processes, internal and external procedures and social culture, is the knowledge that is achieved with the permanence of the staff.

While it is true that there are support elements such as tutorials for the use of technology, procedures manuals and specialized training in companies, there is still a lack of adequate integration according to the context and requirements that are constantly changing in a company.

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In the technological universities, during the last four-month period of higher technical university and / or engineering level, the students carry out a practical stay in companies guided by an advisor of the plant and another of their own school; This bonding strategy is valuable both for students and for the educational institution, since it allows to put knowledge into practice through a real work situation. This linking strategy also represents a benefit for employers for two reasons: the student performs work that is necessary for the company without high remuneration and, in the event that the practitioner is hired by the company at the end of their stay, this would imply a saving in the costs of induction and training to the position. (Villa L., & Flores-Crespo, P., 2002)

What is proposed in this work is a third benefit of the university-company relationship that consists of a contribution of didactic materials that allow to be a support for specific training, saving with it economic resources and time because its content would promote learning almost autonomous.

These educational materials can focus not only on the knowledge and management of the technologies but also on the production processes that are generated internally, whose experience and skills of the participants become key to making the work efficient. The proposal to develop them is an adaptation of a model for Design of Didactic Materials (Roldán, 2010) and is based on the framework of teaching for the understanding of Project Zero of Harvard University (Perkins D., 1999)

Theoretical framework

When we say that the workers of a company have the "know-how" of the organization we refer to that they possess the accumulated tacit knowledge in relation to the elaboration of the product or service provision that the company offers to the market, in this same sense when we talk about "technology" we focus both on the qualitative properties of the machine, the equipment and the product, as well as on the management and organizational systems and procedures; therefore, it is the "know-how" that is incorporated both in individuals and in procedures and routines (Formento, H, & Pittaluga, J. 2005).

For its part, Kok (2007) establishes the following definitions: "human capital", which includes the experience, know-how, abilities, skills and experience of the human members of the organization; "structural capital": has been described as that knowledge that the company has been able to internalize and that remains in the organization, in this dimension all the intangibles that do not reside in the members of the organization are included, that is, from the culture and internal processes, even information systems and databases. To the respect Huber (1991) comments that the knowledge talks about a complex product of the learning and the interpretation of the information, the understanding of relations cause and effect the "know-how", that is to say the transformation of information in new knowledge.

In this sense Ramírez (2008) points out "individual learning is a prerequisite for organizational learning... After individual learning, knowledge is transmitted to other very close individuals who share similar patterns of interpretation" (p.17). Thus, learning can occur through interaction with staff, or through relationships with other agents who complete the knowledge.

As mentioned by the United Nations Organization for Education, Science and Culture UNESCO (2018) "The exchange of knowledge and information, particularly through Information and Communication Technologies (ICT), has the power to transform economies and societies... UNESCO promotes the "openness" of content, technology and processes through awareness raising, policy formulation and capacity building. These solutions include open access to scientific information, open educational resources, Free and Open Source Software, Open Training Platform, distance education and self-learning "(p.1).

On the other hand, different models and contributions have been proposed to achieve learning on the part of the students and that this is externalized through an efficient work, whose impact benefits and contributes an added value to the company. Some experts such as Perkins and Biggs (1999) argue that learning is understood as ensuring that the learner understands, not only that they know a knowledge but that they think from what they know and act flexibly in conditions different from the context in which they originated.

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For his part Cesar Coll, C. (2008) mentions that "knowledge has become the most valuable commodity of all, and education and training in the ways to produce and acquire it" (p.114). In addition, as the same author Coll and Monereo points out with respect to ICT which enhance (2008) "the possibility of using sign systems- oral language, written language, static images, moving images, mathematical symbols, musical notations, et..- to represent certain information and transmit it "(p.22).

So it is important to make a distinction between the Technology of Education and New Technologies applied to Education, while the first focuses on studying teaching strategies using the characteristics of multimedia focusing on the design of technological resources for the processes of teaching learning, the second seeks training and teacher training as a user of multimedia resources. (Light, 2018).

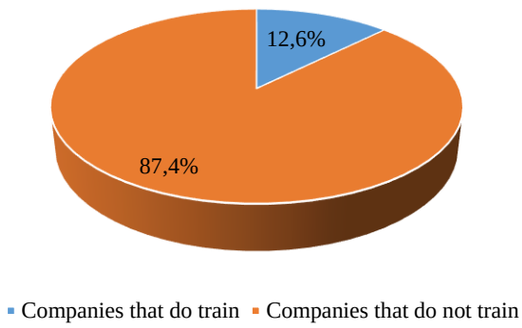
Thanks to the incorporation of multimedia and internet technologies, knowledge has been allowed not only to be acquired in educational institutions but it has been mobilized by removing spatial and temporal barriers, making it possible in practically any scenario (school, home, workplace, leisure spaces, etc.). This is how more people can access new resources and educational possibilities, so that learning is no longer seen only as an instrument to promote the development, socialization and culture of people, but it becomes a fundamental motor of social and economic development.

The National Institute of Statistics and Geography (INEGI), indicates that there are four million 15 thousand business units in Mexico, where 99.8% are SMEs, generating 52% of the Gross Domestic Product (GDP) in addition to multiple jobs, so that their role in economic activity is fundamental. (INEGI, 2014)

Vásquez, M., Ugarte, R, Torres, M. and González, B. comment that Information and Communication Technologies (ICT) play a very important role in the competitive advantage of companies, therefore, if the company it does not have as main policy the use of ICT for its operation, it will lose ground against direct and indirect competition. If the company does not stay at the technological forefront it is possible that it loses customers and its competitive advantage is obsolete in a short time.

Therefore, it is important that you invest in economic and human resources to develop better technology and train in the use of it.

According to the National Survey on Productivity and Competitiveness of Micro, Small and Medium Enterprises (ENAPROCE) 2015, "just over 4 million existing companies in Mexico during 2014, 97.6% are microenterprises and concentrate 75.4% of the total employed personnel, followed by small companies with 2.0% and 13.5% and medium companies representing 0.4% and 11.1% respectively". Of the total of these companies considered by ENAPROCE, 12.6% provide training to their personnel. Highlights the participation of medium and small companies which registered 73.7% and 55.8% respectively. In the micro-enterprises, 11.5% train their personnel. As shown in Graphic 1



Graphic 1 Distribution of the Number of Companies that Provide Training to Employed People, 2014
Source: INEGI, ENAPROCE (2015)

In the ENAPROCE survey in the area of Information and Communication Technologies (ICT), Small companies 93.4% of companies use computer equipment and 92.4% use the Internet; as well as the Medium Companies 74 of each 100 companies provide training and 99.1% of the companies use computer equipment and 98.4% use the internet (ENAPROCE, 2015) as can be seen in Figure 2 and Figure 3

On the other hand, for 2015, AmiTi pointed out that 50% of Mexican companies invested in ICT to improve business processes and productivity. According to the IDC LA Telecommunications survey on ICT investment trends in the same year, about 28% of national companies would increase their spending on ICT, while 49% would maintain it and only 23% would seek to reduce it. We are talking about technologies that would require intensive use of the network.

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It is worth mentioning the increase in the use of mobile phones for managing information and multimedia, which is why more applications are required, this leads to the use of a convergent architecture that allows the multiplicity of protocols. (Amiti, 2015).

ICT have been used in companies for different purposes, such as Peirano, F., & Suárez, D. (2004) who identify four types of use: the first, for the access and exchange of information, including the performance of procedures before public agencies, banking operations, personnel selection, search for information related to customers, suppliers, competitors and markets; the second type are the uses related to the generation and exchange of records, where the company is considered to have a website and the operations involved such as purchase, sale, organization processes, control and planning; The third and fourth types are of higher complexity since they consider analysis and planning tasks including the management of the relationship with suppliers and customers, use of software for allocation of resources within the company and for the analysis of transaction records as the follow-up to diverse activities, through internal networks.

As pointed out by Martínez, E & Martínez, F. (2009): "training methods and techniques refer to the different ways in which to organize, implement and execute teaching processes to achieve the anticipated learning objectives." They also add that There are different types of training: at work, outside of work, face-to-face and non-face-to-face, the latter being a central reason for the development of our research because it does not necessarily require the physical presence of the instructor in the learning process.

Some companies document the knowledge that is generated, but there are others where it has been visualized that students who join the practical stay must generate their own knowledge because there is no specific documentation on certain processes.

The training by expert staff is a daily and repetitive practice that could be reduced in time and cost for the company if there were support materials that were useful in such training processes within the company.

The process of designing a didactic material requires good planning, this implies different requirements that range from pedagogical, presentation, viability, technical and human requirements, etc.

From this perspective, this implies a decision-making process, taking as a reference the characteristics of the target population, the context in which it will be used, objectives and learning contents that are intended to be developed, and the support that different resources can offer or symbolic systems to present and structure the information (Cabero J., 2007).

Some methodologies have been proposed for the creation of didactic material, Ogalde I. and González M., (2007) contemplate six phases: Planning, where it considers objectives, resources, tasks and times; Analysis, where the content is selected, user profile modality, distribution form; Design, which proposes structure and technological resources; Development, for the elaboration of contents; Implementation, start-up and maintenance; and, Evaluation, consisting of carrying out an opinion poll for its evaluation.

In parallel, the Department of Computational Education and Instructional Technology of the Balikesir University in Turkey, proposes a study based on the ADDIE design model (analysis, design, development, evaluation) for the development of educational resources. (Yüzen & Karamete, 2016).

In its theoretical framework, instructional designers and educational developers are based on five phases: analysis, design, development, implementation and evaluation. Although it is true that the phases are very similar, the elements that it incorporates are based on the following forms of learning: multiple ways of representation, action and involvement. (Piskurich G., 2015).

It should be noted that in the process of designing a teaching material there are no defined or unique methods, each entity or institution incorporates elements that are useful in their development, adapting them to their context and needs.

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For the previously mentioned, the proposal in this paper is to explain a model for the creation of Teaching Materials in SMEs, which will take as a basis the model of Design of Teaching Materials proposed by Roldán N. (2010) which has been used for modeling other materials such as the Programming Logic Teaching Pack (Roldan N. Lizardi V., 2008), Propaedeutic Study Techniques Courses (Lizardi V, Roldán N, Bolaños R, 2016), material that remains in force and is a reference in the Division of Information and Communication Technologies of the Technological University of Puebla.

Methodology

Contextualization

The educational model of the Technological Universities (UT) is based on a scheme of high intensity and short duration. "The educational content focuses on the fundamental aspects of each subject, so that students, upon completing their studies, manage a universe of theoretical-practical tools that allow them to adapt to different production processes." This scheme facilitates graduates to link with the productive sectors, achieving that their transit from the school environment to the work force is immediate. "(CGUT, 2017)

In the three levels of education: Higher University Technician, Engineering and / or Bachelor's degree, a four-month period of professional training is offered whose purpose is to allow the student to put into practice the skills related to the work methodology, both intellectual and practical, to solve problematic situations in real conditions; This must be approved by business and academic advisors.

The students that make their practical stay are incorporated to diverse entities, including PYMES. During their stay they observe, gradually knowing and managing the context of the work plant, the technical language, use of their own technologies, information management and the way they carry out the production processes, handling of internal and external procedures, organizational and social culture; This learning acquired during your stay is a training that, in an inherent way, these practitioners develop.

Each student who joins the productive sector not only leaves a contribution through the development of their projects (requirement to complete their practical stay), but generates knowledge and new skills but, once your stay ends, this could be lost if not the member who replaces it is replicated. It is likely that you leave documentation regarding the development of your project, however the acquisition of know-how may not be documented. Hence the importance of generating teaching materials that can be used as support elements in self-training processes.

Instrument design and type of research

The scope of this study is descriptive-qualitative, since it was developed thanks to a series of questions whose information allowed to describe the general perception of the answers collected according to the percentages obtained. A total of 81 students of practical stay were interviewed: Higher University Technician and Engineering of four UT: Technological University of Huejotzingo, Technological University of Xicotepec de Juárez, Technological University of Tehuacán and Technological University of Puebla. The following divisions were taken into consideration: Higher University Technician in Information and Communication Technologies; Corporative development and innovation Engineerign; Engineering in Information Technologies; Administration Human Resources Area; Superior University Technician in Industrial Area Maintenance; Engineering in Business Development and Business Innovation; and Industrial Maintenance Engineering.

For the first block, open short answer questions were prepared to identify the type of stay, each student's training, as well as to know the context where the practical stay was conducted and investigate the type of company, the age of the staff work on it. Obtaining the following results of the total of the population that responded to these questions. (See Table 1)

The second part of the survey considers the induction that the student receives when entering the company, as well as the supports that are provided and the types of technological resources; in the third part, the end of the stay is investigated, what kind of materials are left to the company as part of their training and the learning generated during this process.

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No. Question	Statement		Answers		
P1	Year in which a practical stay was made		2014 4%	2015 21%	2016 75%
P2	Level of student training		*Senior University Technician 25.9%*	*Engineering 74.1%*	
P3	Type of company where practical stay was made		*Micro Company 11.1%*	*Small company 8.6%*	*Medium Company 80.2%*
P4	Average age of employees	19-22 years 3.1%	23 -30 years 54.7%	31-40 years 31.3%	More than 40 years 10.9%

Table 1 Practice Stay Identification Questions
Source: Own Development (2017)

In this section, the Likert scaling method is used, using five levels to measure the students' reaction to each questioning. The variables with response have a nominal value associating the words: Totally Agree (TA), Agree (A), Partly Agree (PA), Partially Disagree (PD) and Totally Disagree (TD), these levels will make it possible to qualify and capture the feelings of the respondent towards the questions raised. (See Table 2)

Questions	Statement	Totally agree				Totally disagree
P1	Did you receive an induction course about the company? Business philosophy (mission, vision, values)	TA	A	PA	PD	TD
P2	You were informed of the company's policies: entry and exit schedules, tolerance, remuneration (if any), information management, rights and obligations.	TA	A	PA	PD	TD
P3	You received a training course or, in any case, advice on how to carry out daily activities.	TA	A	PA	PD	TD
P4	In case you were asked to improve a project, you were given a development manual indicating how the project was made.	TA	A	PA	PD	TD
P5	In case you were asked to work on a specific software system to control, personnel, processes, information, etc., you were given a user manual.	TA	A	PA	PD	TD
P6	Before leaving, you were asked to document the work prepared for future practitioners. For example: you left a writing showing how to carry out a process that you learned (handling information from the company, from a software system, specialized machinery or personnel).	TA	A	PA	PD	TD
P7	Before leaving, if you elaborated a process or product, they asked you to document how to update it.	TA	A	PA	PD	TD
P8	You were offered training on some knowledge that you would have to apply in the company. For example, the use of ICT, or specific software.	TA	A	PA	PD	TD
P9	You were provided with sufficient support material for the performance of your activities.	TA	A	PA	PD	TD
P10	You were given time to investigate what you did not know and needed to know to perform your functions. For example, how to link Excel files with Word, mass mailing, email account management, etc.	TA	A	PA	PD	TD

Table 2 Generic questions made to obtain information on materials and / or resources used during the Practical Stay
Source: Own Development (2017)

Finally, a question was elaborated that sought to investigate the type of materials that the practitioner received, including six options to choose from: Text Documents, Slide Presentations, Video tutorials, Interactive Multimedia Activities, Direct explanation with the expert instructor.

Results

With the information obtained from the questionnaire, a measurement is made of the way in which knowledge is generated, induction courses and / or training that is applied during the practical stay, in addition to the contribution that the practitioner leaves of said experience for users or future apprentices.

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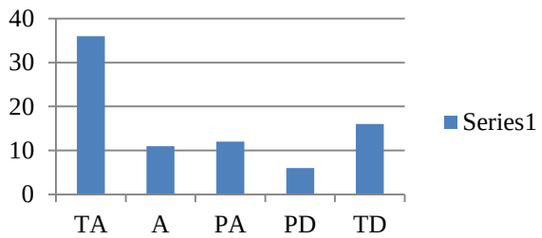
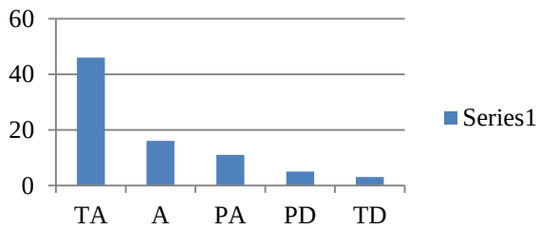
The results obtained in each statement are presented below by means of bar graphs to present the frequency of variables of nominal scale. The length of the bar indicates the frequency and the width of the constant.

In questions 1, 2 and 3, where you want to know if students receive an induction and / or training course about the company, as well as its operational part and policies, it was found that 69% of students expressed their opinion on the acceptance scale (TA, PA, A), where it can be seen that when students enter a company they receive information on how the activities, regulations, schedules, handling of information, etc. are carried out. Which implies that they have a time of induction and training that helps the student adapt to the work activity of the company (See Graphic2).

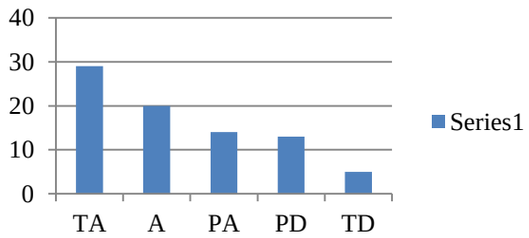
P1. Induction course of the company was received



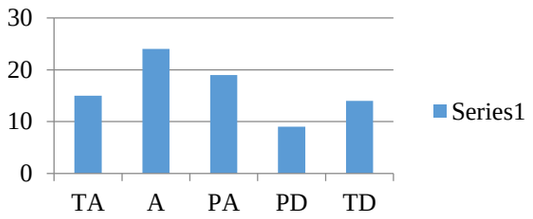
P2. We received political information, information management, etc.



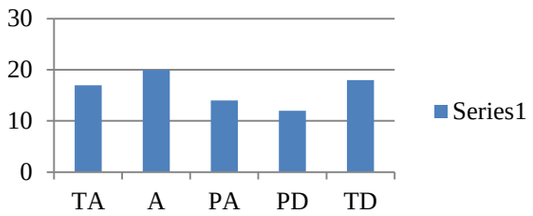
P3. Training course was received



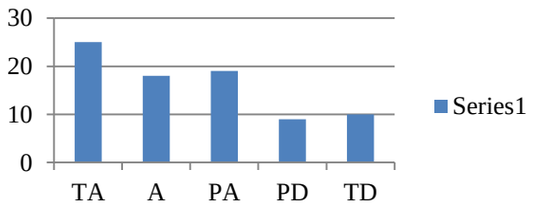
P4. Project development manual received



P5. User manual received about a particular process



P6. It was requested to document elaborated work



Graphic 2 Results of questions 1, 2, 3, 4, 5 and 6 Research Instrument Statistics Technological Universities
Source: Own Elaboration 2017

In question 4 regarding the improvement of a project, it was questioned if a manual of elaboration was given indicating how it was done, 48% thought they did receive this information. (See Graphic 2). In question 5 questions whether working on a specific Software System to control, personnel, processes, information, etc., they were given a user manual, 45% agree, but also 37% think they did not receive it (See Graphic 2).

In question 6 we want to know if the student is asked to document the work prepared for future practitioners, 53% of the students answered that they do it and 23% do not (See Graphic 2). Question 7 investigates whether, before finishing your stay, a project was developed (product / service) and if you were asked to leave documented how to update it, 64% students said they do leave this information and 23% do not out (See Graphic 2).

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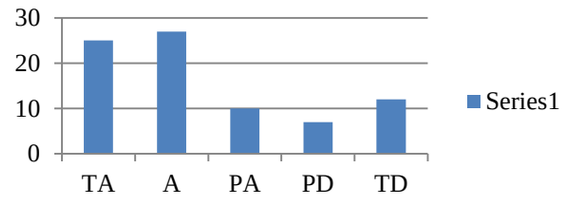
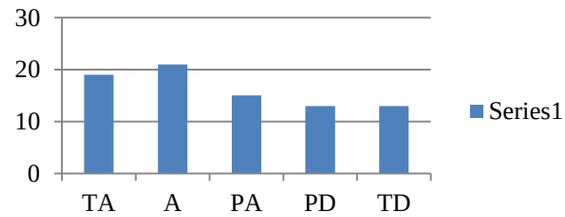
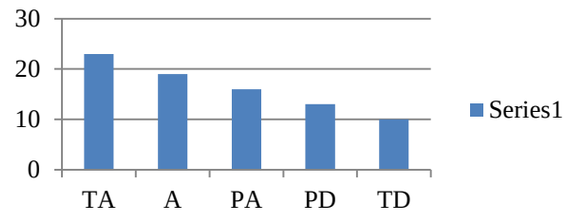
P7. Project Update document was left



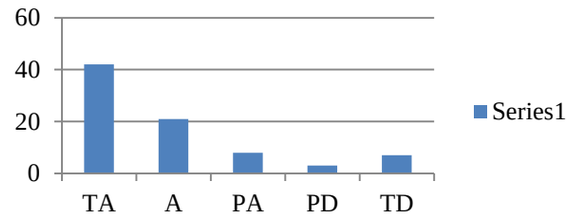
P8. Specialized training was received



P9. Sufficient support material was provided



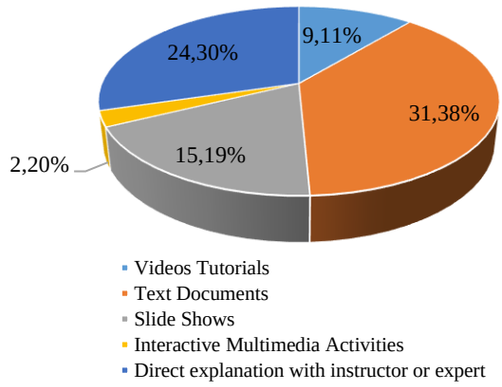
P10. Time was provided to investigate information



Graphic 3 Results of questions 7, 8, 9 and 10 Research Instrument. Stays Technological Universities
Source: Own Development (2017)

In question 8 we want to know if specialized training is obtained: 49% of the students answered yes and 32% did not. In question 9, he questioned whether he was provided with sufficient support material for the performance of his activities: 51.8% were in the affirmative, while 28.3% did not have enough support. Finally in question 10 we wanted to know if the time provided for research was sufficient: 51.8% participants answered positively and 12.34% did not have enough time. (See Graphic 3)

Finally, a question is added to know the types of materials that were provided for induction courses, management of a specialized technology, or knowledge of a process. Six options were shown and the percentage of responses can be seen in Graphic 4.



Graphic 4 Technological Resources for Training used in the Practical Stays
Source: Own Development (2017)

Discussion and Model Proposal

From the results obtained it is observed that the company considers a time to incorporate the student in the knowledge, skills and management of the company processes (Know-How), within this same resources and supports are provided both for the development of the project, as well as to know the internal steps of the entity. Most practitioners are asked to leave documented the project they developed during their stay: operation manuals and / or development of a certain technology, however there are activities that are not documented, lessons learned that are not followed up.

In fact, the last question is revealed where the percentage of materials they have is known: where the documents extracted from the internet occupy 31.38%, which has a disadvantage, since it does not adapt to the particular characteristics of the company; Slide shows occupy 15.19%; and, there is a low tendency in the use of video tutorials.

It is also interesting to know that there is training done orally (24.3%), that is, it requires the explanation of an expert to understand the topic, procedure or specific technology management; this information is not documented and this process has to be repeated as soon as a new member arrives.

For the reasons mentioned above, it is proposed to use a Model for the Design of Teaching Materials within SMEs so that students not only leave the contribution of the stay project, but also add teaching materials that can be used to acquire the Know-How of the company and are incorporated in the training processes. The proposed design and production is based on the Didactic Materials Design Model proposed by one of the authors of this article (Roldán N., 2010), which has been tested to generate educational materials at the Technological University of Puebla adapted to the conditions we have in the practical stay.

At Harvaard University, Project Zero (Perkins D., 1999), known as "Teaching for Comprehension" (EpC), was developed, in which a set of investigations was carried out to determine the characteristics of understanding teachers should use in order to promote teaching - learning based on "understanding".

A conceptual framework was developed that includes four key ideas: generative topics, comprehension goals, comprehension performances and continuous diagnostic evaluation, these elements allow focusing on what topics, including their aspects, should be understood; In addition to how to promote and verify the progress of the apprentices to find out what they really understood. Our Didactic Materials Design Model is based on this theory that includes different phases and elements.

Phases for the Design of Teaching Materials in the SMEs

This model consists of six phases: Context Analysis, Establishment of Generative Topics, Design of Understanding Goals and Sub-goals, Design of Comprehension Performance, Evaluation of Learning and Application. (See Figure 1 to visualize the relationships between these phases).

Phase 1. Context Analysis The situation where the material will be used is analyzed, answering the questions: where, when, how, with what and why an instruction should be carried out, which will give meaning to its elaboration. Based on four important factors: characteristics of the entity, establishment of priority needs, characteristics of users and technological infrastructure.

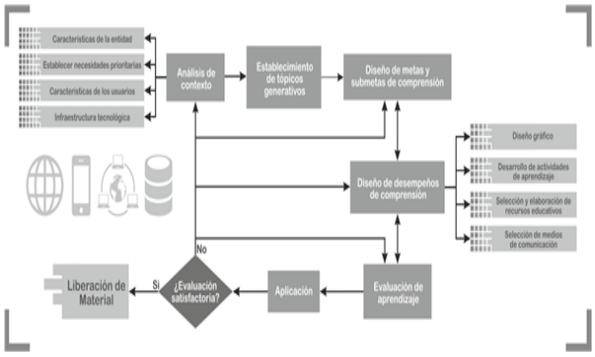


Figure 1 Model for the Design of Didactic Materials (Roldán N. 2010)
Source: Own Development (2017)

In the analysis of the context several characteristics are taken into account that allow to have a general overview of the company, its objective, mission values, policies, processes, form of organization, information management, technology and infrastructure with which it is counted. It is essential to know these elements since the proposals of support material that are generated should be aligned to these guidelines that frame the way of work and operation of the firm.

In this analysis, four important factors are considered: Characteristics of the company: mission, vision, values, objectives, internal policies, management of information and processes, cultural factors, technical limitations, etc; Priority Needs: the Know-How that the student knows and manages during his / her practical stay process, an analysis is made to order according to the importance of the concepts that are used, in two senses: one is, generation of new knowledge and another is the one that is carried out on a daily basis but that is not documented; of this classification is selected along with the project leaders and / or organization of the company the learning priorities that have (urgencies) to train people who join the workforce; Characteristics of the users: the type of audience (users) to which the didactic material will be directed is analyzed, in the instrument that was applied, it is observed that 54.7% are between 23 and 30 years old and 31% among the 31 -40 years, so we must consider learning elements according to age and learning styles, another feature is the language, the terminology used, including knowledge and use of ICT; Technological Infrastructure: which studies the elements that are available to propose materials that can be supported by technological elements and / or communication with which the company has.

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Phase 2. Establishment of Generative Topics Generative topics consist of those ideas or central questions that are guidelines in the generation of knowledge or management of a skill, are topics of rich and illustrative character.

The selection of central topics is related to the priority needs that were established from the context analysis phase.

Therefore, it is essential to be able to extract the important issues, that the project leader together with the practitioners question which is a priority, either because it is used in various projects, processes or situations that the company solves or optimizes the time start-up of some activity. You can use a conceptual outline or map that allows analyzing, relating and discriminating the different topics and questions that you consider important.

Phase 3. Design of Understanding goals and sub-goals. Understanding goals: refers to specifying the concepts, processes, skills and abilities required to have an understanding that serves as a firm basis for later constructions. There are two types of comprehension goals: those that correspond to "particular issues," which are very specific, and the "encompassing or conducting threads" that are broader.

They can be elaborated in the form of statements or questions, the elaboration of which allows the apprentices to have clear the comprehensions that they wish to develop.

It also allows to give value to a concept, that is, why or why is it useful to understand some process in the company? Where do you want to get all this information? What do you get with it? of understanding allows you to remember the objective, this will help you not to get lost in the sea of knowledge when you are designing comprehension performances. Understanding sub-goals: once the overarching goals have been established, one can begin to define for each of these the small goals that must be achieved in a generative topic.

Therefore, a generative topic must have a goal of understanding and a set of sub-goals that once carried out, achieve the understanding and the learning of the desired ability.

Phase 4. Comprehension Performance Design Comprehension Performance: are activities designed to help the learner to explore and establish connections between the new concepts and their previous knowledge implies to perform a variety of actions (performances), which demonstrate what is meant by Some particular subject Comprehension performances are considered a very valuable element for understanding because through these the learners express the ability to use what they know creatively and competently when faced with solving a specific problem within the company.

At this stage, once the topics and goals of understanding and sub-goals have been selected (general and specific objectives), the characteristics of the entity, users and technological infrastructure must be considered, since the resources selected to generate self-learning activities must be supported under the technology with which it is counted. Another element that is considered is the management of the technology and means of communication of the personnel, if it is native or digital immigrant: "the digital natives are all those people who were born in the middle of the 90s (last century) onwards, and the Digital immigrants are all those born before said date. (Prensky, M. 2001) Therefore, the characteristics and skills they possess are different in the learning process.

It is essential to take into account the age of the apprentice because it is not the same way of learning from a digital native to a digital immigrant since, while the former prefers to learn through manuals and written elements or diagrams in one plane, the latter prefers multimedia elements visuals accompanied by image, audio and movement.

Once the activity is visualized and the type of profile of the apprentice is analyzed, a review of the educational resources (presentations, videos, texts, audio, web sites, etc.) that can be used is made. It is ideal that in the elaboration of these activities there is an interdisciplinary team: graphic designer, pedagogue and expert in the area of knowledge. Although, given the circumstances, the consultant of the company would be the expert in the area, the internal advisor would cover the pedagogical part and the student would be in charge of the graphic design and the development of the material.

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Phase 5. Evaluation of Learning Allows to assess how much the students have understood, through feedback situations or integrating works that show evidences about the skills and knowledge acquired.

The way to clarify and improve the theories is through the exchange of knowledge since the discussion with other people allows to restructure and reflect the conceptions that were at the beginning of the learning process. To develop the evaluation criteria, the established comprehension goals must be taken into account.

Phase 6 Application (Evaluation of Teaching Materials) Once the material is elaborated, it is important to evaluate it in five basic aspects: the first one is the content: which must be carried out by experts in the disciplines and in the handling of the topics; the second is in didactics: where it is suggested that the evaluators be aware of the methodological and technical strategies in teaching; the third is learning: here the experts who will use the material to verify if it produces learning, it is convenient to know the opinion of the apprentices; the fourth refers to the technical aspect: IT professionals are the ones who must guarantee the functioning of the ICTs used, also the students who managed the material can give their opinion regarding the efficiency; and, finally, the impact: which measures how attractive and motivating the material is to whoever is going to use it. (Roquet G. 2010)

Release Following the evaluations, if there is any observation, it is allowed to return to any of the previous phases in order to improve the product. In case of detection of any failure that has to do with the functionality of the technological resources, these remain in the hands of the experts and the modification does not intervene in the design phases. If in the evaluation of all these aspects the requirements are met, the final phase will be the release and use of the material.

Conclusions

In this work we focus on using technology in education through the generation of educational materials to promote knowledge, skills and experiences obtained in a SMEs ("Know-How").

It is essential to invest in human talent developing programs and training methods to anticipate changes, impose competitiveness and meet demands in productive processes, teaching materials can be a form of support in the training and independent learning of company personnel.

The generation of information, knowledge management, management of information and communication technologies within SMEs can be carried out through materials and didactic resources specifically for each particular situation of the companies. This training will allow a time saving that can have a beneficial impact on the productivity and competitiveness of the firm.

A survey was developed that reflected the way in which the students of the technological universities receive courses of induction and training for the performance of their activities during their stay in the company, however the materials they have are mostly foreign internet documents. to the characteristics of the entity, and a considerable percentage receives direct instruction through an expert.

Derived from the above, it is proposed to generate educational materials of the skills and abilities developed by practitioners during their stay in the workplace. Although, at the beginning, practitioners may be unaware of the organizational and procedural policies of the area where they provide their services, as they learn they learn and identify needs that can be covered not only with the entrusted projects but with specific didactic materials that encourage self-learning personal.

The proposal to generate these materials is through a Model for the Design of Educational Materials proposed by one of the authors of this article, which consists of six phases that provide a guideline for their development.

As future work, it is intended to develop didactic materials in the different companies SMEs supported in the collaboration of the students who carry out their process of practical stay. Once this is done, it will be necessary to measure their contributions to know what the opinions are and the impact regarding the training and learning of the knowledge for which they were prepared.

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Similarly, it seeks to promote this model within the ICT Division at the Technological University of Puebla and share it with other educational institutions.

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Financial Analysis of a Poultry Production Microenterprise

Análisis Financiero de una Microempresa de Producción Avícola

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Abstract

This paper presents the results of a financial study conducted with a family microenterprise, which is located in the Mixteca region of Puebla, dedicated to poultry production. This is a very common economic activity that represents an alternative income and self-consumption for families in rural communities such as the one previously mentioned. During the first stage, financial opportunity areas of the company were identified. Afterwards, a strategic plan will be formulated that allows this microenterprise to survive. After that, in the medium term, the microenterprise could grow and get a good position in the market. The main problem detected in the microenterprise is that with the amount of biological assets that it currently operates, it does not have the necessary egg production to cover its costs and expenses, so it gets a considerable loss. This research was carried out through the Integrative subject of Engineering in Project Management Major. Through these Integrative subjects, the technological universities strengthen the link university company and facilitate the transfer of technology thus contributing to the competitiveness of micro-enterprises.

Integrative subject, Financial analysis, Microenterprise, Poultry sector

Resumen

En este artículo se presentan los resultados de un estudio financiero realizado a una microempresa familiar dedicada a la producción avícola, ubicada en la mixteca poblana, esta actividad económica es una alternativa de ingresos y autoconsumo para las familias de comunidades rurales, a través de esta investigación se identificaron áreas de oportunidad financieras de la empresa, posteriormente en una segunda etapa, se formulará un plan estratégico que permita primeramente la supervivencia de la entidad, y en el mediano plazo su crecimiento y posicionamiento en el mercado. El principal problema detectado en la microempresa es que con la cantidad de activos biológicos que opera actualmente, no llega a tener la producción de huevo necesario para cubrir sus costos y gastos, por lo que obtiene una pérdida considerable. Esta investigación se realizó a través de la asignatura Integradora de la Ingeniería en Gestión de Proyectos, por medio de estas asignaturas las universidades tecnológicas fortalecen el vínculo universidad empresa y facilitan la transferencia de tecnología contribuyendo así a la competitividad de las microempresas.

Asignatura Integradora, Análisis financiero, Microempresa, Sector avícola

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Introduction

Backyard poultry is an activity of great importance in the rural communities of the country, characterized by the low investment required and the ease of carrying it out. (Romero Lara)

In 2016, an egg consumption of 22.1 kilos per capita and a production of two million 731,891 tons was registered throughout the Mexican Republic, with the State of Puebla being the second egg producer in the Republic contributing 18.4%. (Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food, 2016). The organic egg, also called enriched, ecological or campero, is a real alternative for those small poultry producers who are looking for new roads, and who, despite having little capital, have a broad commercial vision. This product from feeding the hens in a natural way, housed in semi-captivity, without artificial lighting, represents an interesting diversification opportunity for the small producers that now face the big companies producing commercial eggs. (Esquivel, 2004)

Small and medium-sized companies are the backbone of Mexico's economy, of just over 4 million existing companies in Mexico during 2014, 97.6% are microenterprises and account for 75.4% of total employed personnel, followed by small companies with 2.0% and 13.5% and medians representing 0.4% and 11.1%, respectively. (National Institute of Statistics and Geography, 2017)

The present investigation has as its purpose; know the management of the financial resources of a family poultry microenterprise producing organic egg, located in the municipality of Chietla, belonging to the Mixteca poblana, in order to identify areas of opportunity to ensure its survival in the local market, in a manner of hypothesis is established that the lack of techniques in the administration of resources and the ignorance of the employer on the management and obtaining of government support, causes a limited production and that prevents the activity from becoming a business and only remains as an alternative of self-consumption for the family.

Idalberto Chiavenato mentions that the company "is a social organization because it is an association of people for the exploitation of a business and that it has a certain objective, which may be the profit or the attention of a social need" (Chiavenato, Iniciación a the Organization and Commercial Technique, 2000). Therefore we can point to the company as: an organization that performs a set of activities and uses a variety of resources (financial, material, technological and human) to achieve certain objectives, such as the satisfaction of a need or desire of the target market, in order to profit or not; and that it is built from specific conversations based on mutual commitments between the people who make it up.

Companies can be classified, according to the activity they develop, into: industrial, commercial and service. And according to its size, it is divided into micro, small, medium and large. Monteros defines microenterprise as an association of people who, operating in an organized manner, use their knowledge and resources: human, material, economic and technological for the production of products and / or services that are supplied to consumers, obtaining a profit margin after covering their variable fixed costs and manufacturing expenses "(Monteros, 2005). Recall that for a company to work, it is essential to know the administrative process of planning, organizing, directing and controlling the activities of the members of the organization, in order to achieve the goals set. The Ministry of Finance and Public Credit establishes a stratification, based on the number of workers and annual sales, as shown in Table 1.

Stratification				
Size	**Sector**	**Rank of number of workers**	**Range of annual sales amount (mdp)**	**Maximum combined stop ***
Micro	All	Up to 10	Up to $4.00	4.6
Small	Commerce	11-30	$4.00-$100	93
	Industry and Services	11-50	$4.01- $100	95
Median	Commerce	31 100	$100.01 - $250	235
	Services	51-100		
	Industry	51-250	$100.01-$250	250

Table 1 Estratificación de empresas por la SHCP
Source: (Economía, 2009)

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The company under study is of the micro type and belongs to the agro-industry sector. Agroindustrial companies are business units that generally arise from the integration of agricultural producers, in order to carry out agroindustrial processes of transformation or processing of primary production, with the aim of taking it to the modern market with a new added value and retaining part of this. This type includes the agroindustrial projects carried out by peasant organizations, be they cooperatives or producer associations, or simply temporary unions (Parra Escobar).

The municipality of Chietla belonging to the Mixteca region of Puebla (southwest in the state of Puebla), is where the family microenterprise object of study is located, dedicated to poultry production. Chietla is formed by a total territorial surface of 276.82 square kilometers. Due to the variety of elevations found in its territory, its average altitude is 1,000 meters above sea level (msnm). On the other hand, the INEGI (2010), released the results obtained from the third count of population and housing made in all states and municipalities of the country, in 2010 noted that the population number in the municipality of Chietla is 33,937 inhabitants, for this research only the population of the municipal head was taken into consideration, since that is where the companies of the present study are located, therefore the town of Chietla is inhabited by 5,726 people, which corresponds to a 16.87% of the total population. (SEDESOL, 2013)

Materials and methods

The research was carried out through the Integrative II subject of the Engineering Education Program in Project Management. The company under study is a family type, micro size, with 2 years of operation. The research is developed by members of 3 academic bodies and the direct participation of students. The syllabus of the subject calls for the identification of a problem and the integration of a file for the management of government subsidies, however in this article only the results obtained from the financial analysis are presented in a diagnostic manner, regardless of whether the project integrator was concluded according to the curriculum.

The information was obtained based on interviews conducted with members of the family business, in addition to the students made field visits to learn about the processes and operations of the same.

The information obtained through the interview and the observation, was treated by means of a cost analysis elaborating a Financial Situation Statement and a Results State, likewise the equilibrium point was determined. This to determine areas of financial opportunity in the company.

Results

Based on the information gathered through the interviews, financial statements were integrated to carry out the corresponding analysis. It is worth mentioning that the company in question has already 28 months in operation. Table 2 shows the balance sheet when starting operations, where we observed that 70% of the capital was obtained from a subsidy from the Ministry of Social Development.

Initial General Balance Poultry company				
Active:		Passive:	0.00	
Circulating:				
Biological warehouse (20 hens)	1,800.00	Capital:		
		Sedesol	1,300.00	
Not circulating:		Owner	3,050.00	4,350.00
Property plant and equipment	2,550.00	**Sum of Liability plus Capital**	**4,350.00**	
Total active	**4,350.00**			

Table 2 Initial General Balance
Source: Own Elaboration

Table 3 shows the income statement corresponding to the last year of the company, which included the costs and expenses that the family business does not account for. Obtaining a considerable loss.

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Income Statement for the period from January 1 to December 31, 2017		
Revenue from sales (4,745 X 2.50)		$11,862.50
Less Costs:		
Direct labor	$19,200.00	
GIF (Supplies)	6,348.00	
GIF (Variables: Water and Light)	4,002.00	$29,550.00
Gross profit		-17,687.50
Less General Expenses:		
Cleaning articles	$7,751.00	
Administrative salaries	28,000.00	$35,751.00
Loss of operation		**-53,438.50**

Table 3 Statement of income
Source: Own Elaboration

Based on the information presented in the previous income statement, the balance point of the company was calculated to make future projections.

Fixed costs-Variable costs	
Fixed costs:	
Workforce	19,200.00
Supplies	6,348.00
Cleaning articles	7,751.00
Administrative salaries	28,000.00
Total	**61,299.00**
Variable costs:	
Light	2,400.00
Water	1,602.00
Total	**4,002.00**

Table 4 Fixed costs-Variable costs
Source: Own Elaboration

Determination of variable unit cost: 4,002 / 4,745 = 0.84
Unit sale price = 2.50

Formula:

$$PE = \frac{\text{Fixed costs}}{\text{Sales price} - \text{unit variable cost}} \quad (1)$$

$$\boldsymbol{PE = \frac{61,299}{2.50 - 0.84}}$$

$$\boldsymbol{PE = \frac{61,299}{1.66}}$$

$$\boldsymbol{PE = 36,927.11}$$

Result: It is required to sell 36,928 eggs to avoid loss

Determination of number of hens for equilibrium point:

$$Annual\ production\ of\ each\ poultry = \frac{365}{2} = 182\ Huevos$$

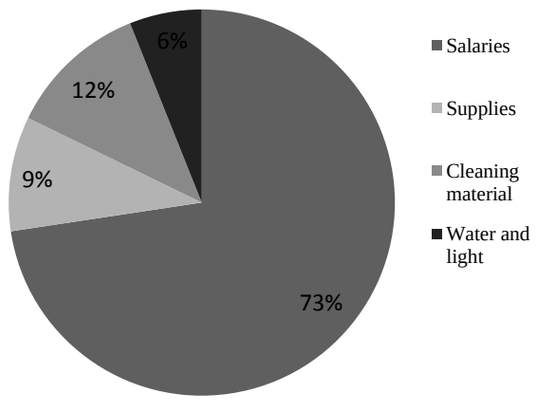
$$So = \frac{36,928}{182} = 202.8962 = 203\ hens$$

Once the equilibrium point for poultry is known, the following projected results statement was made.

Income Statement based on Balance Point:		
Sales income 36,928 X 2.50		$92,320.00
Less Costs:		
Variable cost: 36,928 X 0.84	$31,021.00	
Direct labor	19,200.00	
GIF (Supplies)	6,348.00	$56,569.00
Gross profit		$35,751.00
Less General Expenses:		
Cleaning articles	$7,751.00	
Administrative salaries	28,000.00	$35,751.00
Loss of operation		**$0.00**

Table 5 Statement of income
Source: Own Elaboration

Then Figure 1 shows the percentage distribution of costs and expenses of the company where we see that the highest percentage corresponds to salaries.



Graphic 1 Costs and expenses of the poultry Company
Source: Own Elaboration

Discussion

Regardless of whether the companies carry out a financial study (internal analysis) that allows them to visualize and make decisions, it is necessary to study the risk factors from the environment, therefore, in the regional context in which the poultry micro family business is located, It detected that there are factors that favor the development of this entity, since in this locality it is the only one of its kind, it includes a market niche of organic egg consumers, therefore the large poultry companies do not represent a serious threat as direct competitors . In contrast, there are also factors that hinder the company from achieving a position in the local market, among which are the lack of suppliers close to the region, inadequate training and training in the management of bird care and the lack of development of a trademark.

According to the bibliography consulted on the poultry activity, it is said that this generates surpluses for sale and represents a source of income for families, this is correct if it is considered only as an economic activity in addition to the main source of income of these, in This study was conducted on the microenterprise, already seen as a business that becomes the main activity providing the livelihood of the nuclear family.

Conclusions

The poultry activity in the region is perhaps very common in the backyards, because its management is simple and its production process is not complicated in smaller quantities and generally the product is only used for self-consumption, but when its production increases this process it becomes complex, becoming a company that requires certain factors that allow it to develop well, such as; a training, facilities, infrastructure, equipment, optimization of resources to become competitive. As a result of the financial analysis of the poultry company it was determined that during his last year, it was a loss that the microentrepreneur does not visualize, since he does not consider as costs and expenses the salaries of the relatives in charge of the care of the hens and the sale of the egg, besides the consumption of electrical energy, water, among others.

As mentioned in the discussions, if we visualize the microenterprise as the activity that provides income for the family, it is concluded that the main problem is the lack of hens for a sufficient production that covers the market demand, the factors that accentuate this The problem is the lack of availability of breeding stock due to the scarce suppliers in the region and the lack of economic resources of the entrepreneur for the acquisition. In this way, what is stated in the hypothesis is verified, mainly the lack of knowledge about obtaining government subsidies for this type of microenterprises.

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Evaluation of the quality in the service of tourist products in the magical towns of Yucatan

Evaluación de la calidad en el servicio de los productos turísticos en los pueblos mágicos de Yucatán

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Abstract

The project Study of Profile and Degree of Tourist Satisfaction of the Main Tourist Destinations of Yucatan aims to: Characterize domestic and foreign tourists in relation to their sociodemographic attributes and consumption structure of tourist and non-tourist services in the main destinations of Yucatan as well as to evaluate the satisfaction of the tourist in relation to the services consumed. The two methodologies used are: the proposal by the Center for Advanced Studies in Tourism (CESTUR) divided into three sections: The profile of the tourist, travel habits and satisfaction of the tourist and the SERVQUAL to measure the quality of service through the satisfaction index calculated by the difference in expectations and customer perceptions (Parasuraman, Zeithaml and Berry, 1993). The study presents an analysis of the degree of satisfaction of the tourist products consumed during the visit of the tourist to the state.

Quality in service, Degree of satisfaction, Tourist

Resumen

El proyecto Estudio de Perfil y Grado de Satisfacción del Turista de los Principales Destinos Turísticos de Yucatán tiene por objetivo: Caracterizar a los turistas nacionales y extranjeros en relación a sus atributos sociodemográficos y estructura de consumo de los servicios turísticos y no turísticos en los principales destinos de Yucatán así como evaluar la satisfacción del turista en relación a los servicios consumidos. Las dos metodologías utilizadas son: la propuesta por el Centro de Estudios Superiores en Turismo (CESTUR) dividida en tres apartados: El perfil del turista, los hábitos de viaje y la satisfacción del turista y el SERVQUAL para medir la calidad del servicio por medio del índice de satisfacción calculada por la diferencia de las expectativas y las percepciones del cliente (Parasuraman, Zeithaml y Berry, 1993). El estudio presenta un análisis del grado de satisfacción de los productos turísticos consumidos durante la visita del turista al estado.

Calidad en el servicio, Grado de satisfacción, Turista

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Introduction

The measurement of quality in the provision of the service is often considered subjective, this in combination with an increasingly demanding market becomes for any economic unit an important requirement to be competitive.

That is, carrying out studies on quality, measurement and assurance of this, is a priority. One of the main indicators of the service is customer satisfaction, but knowing the scenario for any business depends on the perception of each individual and the performance characteristics of each service.

In Yucatán, specifically the tourism sector, requires information on tourism demand for decision making that benefits public, private and social agents who can make use of this information, in order to promote the development of tourism goods and services and not tourist and provide a quality service that is more in line with the profile of the tourist. So that in this way, specialized products can be provided, which satisfy the demand and consolidate the tourist offer. Added to this, there would be more visitors to the destination, which would generate more stable jobs and better remunerated for the benefit of the local population.

For this it is necessary to have indicators of evaluation of tourist destinations, as well as tools for planning, promotion and development of policies, for which, due to this need, the study is carried out, where a series of variables is proposed measure the quality of service index.

In the state of Yucatan, the profile and degree of tourist satisfaction study is currently being carried out, which aims to: Characterize national and international tourists in relation to their sociodemographic attributes and consumption structure of tourist services in the main destinations of Yucatan, as well as assessing tourist satisfaction in relation to the services consumed.

For in this work, the results obtained from the satisfaction of the tourist will be presented.

Problem Statement

The study of Profile and Degree of satisfaction of tourists in the main destinations of Yucatan, arises from the need to generate statistical information in order to guide the needs of tourists and providers of tourism services, so the project is aligned with the State Development Plan (2012-2018) of the Government of the State, specifically with the commitment 36, which consists of "establishing a statistical system that allows the obtaining of information of the tourist activity to make better decisions in the matter of promotion and commercialization "(P. 375), what is presented is only the results on the satisfaction of the tourist.

It is important to emphasize that the study is carried out in magical towns where there is scarce literature on tourism demand. In such a way that valuable information could be generated that could trigger the activity in the destinations located inside the state, thereby supporting the economy of the communities. It is also worth mentioning that this information would contribute to the generation of successful strategies and to a better design of the offer of goods and services suited to the needs of tourists, especially the government institutions responsible for promoting tourism in the state.

Objectives

The general objective is to measure the quality of the tourist service in relation to the services consumed during their stay in the state of Yucatan. The following specific objective can be derived from this objective: quantify the degree of satisfaction of the tourist according to the perception of consumption.

Justification

Statistical information is a tool with a dual purpose: First, it is an instrument for the design of programs and policies that lead to the achievement of objectives such as the growth of special segments and the improvement of the tourism infrastructure; and the second purpose is to increase the visitor's stay and to promote the state in a comprehensive manner. Information is also a fundamental tool for making decisions that lead to the realization of actions that address problems, needs and opportunities that affect the welfare of the population of an entity.

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Therefore, the purpose of this research proposal is to serve as an input in the design and implementation process as well as in the evaluation of public and private actions (entrepreneurs and social entities) with the purpose of improving the performance of local tourism and state in order to generate paid employment and thus contribute to the alleviation of poverty in Yucatan.

Scope of the investigation

The study was carried out in six places located in the state of Yucatan: However, in this work two magical towns will be analyzed, which are considered to have a competitive advantage over the other destinations studied for their attractions. The target population is the tourist aged 18 and over, that is, of legal age, and who have at least stayed overnight at the destination.

Literature cited

Definitions according to the General Law of Tourism

Next we will mention the technical concepts that will be mentioned throughout the study for a better understanding of the study. According to the General Tourism Law published in the Official Gazette of the Federation (2009, p.2). The first concept that must be understood is that of tourist destination, considered as the geographically located place, which offers various tourist attractions. A tourist attraction is a natural, cultural or artificial feature of a destination or tourist region. Where the tourist services are directed to attend the requests of the tourists in exchange for a consideration, in accordance with the provisions of the Law and its Regulation, tourist vocation, which considers the characteristics and economic, social, cultural and / or potentialities or natural that motivates the tourist to move outside their place of residence generating a tourist advantage of a specific territory.

Tourist consumption

The tourist consumption for this study is understood as all consumer spending made by a visitor or on behalf of a visitor, to meet their needs during their travel and stay in the place of destination, this definition is based on the recommendations of the World Tourism Organization (WTO in Datatur, 2017).

According to the UNWTO, it says that tourism consumption based on type and categories of tourism, and are the following:
By "Types" of tourism: Domestic tourist consumption, is the consumption made by resident visitors as a direct result of their trips within their country of residence. The tourist consumption receptor, It is the consumption effected by the nonresident visitors, as a direct result of their trips inside the economy. Outbound tourism consumption, is the consumption made by residents as a result of their trips to countries other than the one in which they reside.

By "Categories" of tourism: Inland tourism consumption, includes all the expenditure made by visitors, both residents and non-residents, when visiting the economy of compilation. It is equivalent to the sum of the internal tourist consumption and the tourist consumption. The national tourist consumption, includes all the tourist consumption on the part of resident visitors, without taking into account where it takes place. Consumption, Includes domestic tourism consumption and tourist consumption. The international tourist consumption, includes the tourist consumption receptor and the tourist consumption. The interior tourist consumption, includes all the expense of tourist consumption that takes place within the economy of compilation. It includes the internal tourist consumption, the tourist consumption receptor and the part of the tourist consumption that corresponds to goods and services provided by residents.

Types of tourism

There are several ways to classify travel as mentioned by Quesada (2006). However for the study only the classification will be defined based on its duration in the destination, which is divided into tourists and hikers. Where the hiker is the one who stay less than 24 hours, that is, he only spends the day in the destination without overnight, on the other hand the tourist is the one who sleeps at least one night. The importance of studying only tourists is that there is a direct relationship between the permanence and use of tourism services, that is, while the stay is longer, the tourism consumption will be greater and therefore the services consumed will be evaluated.

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Tourist destination

It is known as a tourist destination to the place visited. In the case of internal visitors, the destination is an area within the same country of residence. In the case of international visitors, the destination may refer to the country visited or to a region of said country.

A destination is the basic geographical unit used for the development of tourism statistics. Within the country of reference, the country can be divided into destination zones that represent homogeneous tourist regions or that can be groups of administrative regions of the local government (Datatur, 2017).

The tourist attractions as motivators of tourism

The tourist attractions are existing own values, whether natural, cultural or of site, that motivate the concurrence of a foreign population susceptible to be arranged and / or conditioned specifically for their acquisition and / or direct recreational usufruct; (Datatur, 2017).

Being this a motivator, tourists move to the places where the tourist attractions are located, a place or receptor nucleus (place where destinations and attractions are found), in order to carry out activities of the characteristics of the destination and its equipment (Quesada, 2006). For this reason the tourist attractions are considered as the raw material of tourism, which offer visitors everything necessary for their permanence and enjoyment during their visit.

The attractions as motivators of tourism are the raison d'être of a tourist destination, since the latter is built in the place and with the characteristics that promote a rational exploitation of attributes of the attractions, which in turn will define the tourist activities that will make their visitors.

The categories of tourist attractions are the following: Natural sites, museums, cultural events, folklore, contemporary technical, scientific or artistic achievements, scheduled events, where depending on their importance and size of space, they can determine the characteristics of the offer and the tourist demand of a destination; (Quesada, 2006).

Services and products consumed by tourism

The tourist offer comprises the set of goods and services capable of facilitating the commercialization of the tourist product in order to satisfy the demand of the visitors, in this condition it is understood that it can be any establishment where the client and / or user consumes. Therefore, the same must meet the following conditions to be established as a tourist offer: Sell goods and services that by their characteristics are sued mostly by tourists. And these establishments must sell their product for final use in tourist areas, therefore, most of their customers will be tourists.

The following tourist services or products are defined below:

Travel agency. It is a company that conceives, creates, plans, organizes and executes travel service programs for the organizer or the client in which it normally includes accommodation, food, approach and local transport, as well as excursions on site and surroundings for the group of participants in the event at the request of the client; either directly or as intermediaries between users and providers of tourism services both nationally and internationally.

Hotel: It is an establishment traditionally built in vertical physical structures, which has undergone various transformations over time until reaching its specific characteristics of current service, which make it be considered as the typical tourist establishment. These characteristics are given by the accommodation units that are proper in rooms and suites, and where appropriate, by the availability of complementary services (social spaces, restaurants, swimming pools, bar, nightclubs), some of them concessioned to third parties (travel agencies, specialized stores, aesthetics, sports consultancy, etc.). Where the hotel-type service is classified as one that is provided in an establishment with a minimum of 10 rooms, which have been instituted to provide basically accommodation, food and complementary services demanded by the tourist. Where the unit of measurement is overnight and refer to the number of days that tourists stay in a locality. The data is recorded in the place of accommodation.

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Touristic infrastructure. It includes basic works, generally of state action, in terms of access, communications, water supplies, waste disposal, ports, airports, etc.

Tourist product. It is the set of goods and services that are offered to the market individually or in a very wide range of combinations resulting from the needs, requirements or wishes of the tourist and / or visitor. Now, in the production of tourism products, special mention must be made of the special treatment of three types of tourism productive activity: Production of goods, Travel agencies and Tour operators.

Tourist transport. It is all that legally constituted tourist service provider that provides national and international tourists, travel inside or outside the country, transfers, excursions, tourist circuits or car rental with or without driver; by tourist transport companies registered in the National Tourism Registry, with transport units duly authorized, and in which they provide comfort, agility of movement, price, speed and safety to users.

Tourist Satisfaction

Customer satisfaction is an important factor that is reflected in the utility of the business or company. "It is known that companies that have 98 percent customer retention rate are more productive than those with a lower rate" as James and William (2008) mention in this context, when talking about productivity refer to lending a service that the client fully appreciates.
Grönroos (1984) presents another definition and says that the quality of the services must be considered from the perspective of the clients indicating that it is the result of an evaluation process, where the consumer compares their expectations with the perception of the service that has received. Another concept that must be made clear is the meaning of service. The North American Industry Classification System (NAICS) identifies service companies as those that are dedicated to providing an activity to people, businesses or government agencies and other organizations to meet their needs. Of course, this definition includes all the services of the tourism industry. James and William (2008) tell us about some others such as: hotels and other places of accommodation, establishments that offer personal, business, leisure and fun services.

Materials and methods

This study is considered quantitative since it allows to analyze the data in a numerical and statistical way.

The research is considered non-experimental descriptive transectional. Not experimental because, as mentioned by Hernández, et al. (2010, p.149) "is done without deliberately manipulating the variables. Secondly, it is said to be of a transectional type because data will be collected at a single moment in order to describe the variables and analyze their incidence and interrelation at that moment, for this study the information is collected from the month of July to the month of September of the year 2017. And finally descriptive because "it has as objective to investigate the incidence of the modalities or levels of one or more variables in a population" Hernández, et al. (2010, p. 152).

The research aims to identify the degree of satisfaction of the tourist and measure the quality of the service from which the following research questions emerge. What is the degree of satisfaction of the tourist of the different services consumed in the destinations visited in the state of Yucatan? and What tourist services and products are the most consumed by domestic and foreign tourists in the different destinations of the state of Yucatan?

Hypothesis

The hypotheses of the study are descriptive because they predict data of the variables that are intended to be measured and refer to the observation of quantitative variables.

The hypotheses for this investigation are the following:

Hi 1. The lodging establishments have the highest rating.

Hi 2. The security of the destination is perceived as excellent.

Hi 3. The result of the index of general satisfaction of the tourist is placed as excellent, that is, qualifies the different destinations visited with 10 points.

Population and master design

Tourists aged 18 and over with at least one overnight stay at the destination. For this, the monthly statistics of the tourist influx included in the months of June to September were taken as reference (SEFOTUR, 2016), it is important to emphasize that due to the lack of statistical data in one of the magical towns, the calculation was made based on to hotel occupancy to know the approximate tourist influx.

Once the population was determined, the sample was calculated for the different destinations per month and on these values the sample was calculated according to the formula of finite populations:

$$[(n = Z^2 (p) (q) (N) / Z^2 (p) (q) + e^2 (N-1)] \quad (1)$$

The sample was calculated from the total of national and international tourists of each month in the state; The result obtained was stratified by national and international visitors. Then the number of surveys for each destination was calculated for both national tourism and international tourism. It is worth mentioning that these are the preliminary results, with a total of 147 surveys processed.

Design of the investigation

For the design of the instrument, reference was made to the variables of the SECTUR-CESTUR methodology, based on the preparation of profiles studies at the national level. In addition, this methodology is in accordance with the recommendations in the matter issued by the World Tourism Organization (WTO, 2008), which promotes the systematic development of statistics from tourist destinations. The purpose of taking as reference the methodological proposal of the federal dependency is to elaborate a homogeneous study that can be compared with those carried out in other federal entities.

This methodology is proposed to complement in the tourist satisfaction part with the SERVQUAL model, which is a multiple-scale summary instrument, with a high level of reliability and validity, to measure the expectations and perceptions that customers have regarding the service.

This provides a basic framework or framework based on a format representing expectations and perceptions that includes statements for each of the five criteria on quality of service, Parasuraman, Zeithaml and Berry (1993).

The declarations of SERVQUAL are grouped according to the five criteria or dimensions: tangible elements, reliability, responsiveness, security and empathy.

To evaluate the quality of a service with SERVQUAL, it is necessary to calculate the difference between expectations and perceptions, called Deficiency 5. This can be calculated in the score that customers give to each of the five criteria. All the clients in the service of a company obtaining an average of the individual SERVQUAL scores that are obtained in turn, qualifying their declarations and their declarations for each of the criteria and following the following steps:

1. Three criteria taken from SERVQUAL were evaluated: tangible elements, empathy and fidelity for each of the evaluated products and in some public services, safety was included. This at the request of the specific demand of the end user.
2. Afterwards, the average of each question that represents the evaluated dimension was calculated, in order to know individually the rating awarded and detect opportunities for improvement for each service.
3. At the end of the previous step, the total results of the three criteria are added, which will give us the result and the average is calculated to obtain the overall score of the evaluated product. Where it can be seen that the lowest scores represent the highest gaps to achieve quality in the service.

Within the aspects of the Likert-type scale, it is important to highlight the alternatives or points, which correspond to the response options according to the selected instrument. Then the alternatives and values used in the investigation were: (2) Very bad, (4) Poor, (6) Fair, (8) Good, and (10) Excellent.

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Instrument

The measuring instrument consists of 56 questions. Which is divided into variables to measure the sociodemographic profile of the tourist, these include from question 1 to 15 and 49. And for the Measurement of quality has the following classification.

a) The tourist products consumed are in questions 16, 17, 19, 21, 23, 24,26,28, 29, 29A-D, 34, 34A-D, 39, 39A-E, 45, 45B and 46 where Tourists indicate which ones they consumed during their visit. After this, the evaluation of the different quality criteria began, which were divided as follows:

b) Destination (Question 18): In this variable, the destination is evaluated globally in three aspects: public services, accessibility of place and security.

c) c) Tourist Infrastructure (Questions: 16A, 17A and 47): Bus station, airport and information modules where the dimension of tangible elements is taken (Quality in the facilities, signage of the place, printed information and personal image); And Empathy (Attention and service). These will only have results of these two dimensions.

d) Tourist product (Question: 20, 22, 23A, 25, 27, 28A and 47) In these variables we know the consumption of the main tourist products of the destination such as hotels, restaurants, tourist guides, transport and travel agencies, where Three dimensions are taken: Empathy (Attention and service), Tangible elements (Hygiene in food, Quality of the facilities, personal image, quality of the vehicle and modernity of the facilities) and Reliability (Cost of service).

e) Attractions and Activities: (Question: 30-32, 35-37, 40-43): In this also three dimensions are touched: Empathy (Attention and service), Tangible elements (Cleanliness of the place and conservation of the place) and Reliability (Cost).

f) Global Question (Question 48). This question is asked to verify the qualification of the whole experience of the visit to the destination after having been at least one night in the destination.

Results

Below are the preliminary results of the pilot study of the service quality of the main tourist products of two magical towns.

The first table presents the results of the ratings assigned to the lodging services, food and beverage establishments, transportation and travel agencies and it is observed that the lowest score is obtained by the Food and Beverages establishments (7.6), followed by transportation of transfer and travel agencies with 7.7 rating; then Transport continues to travel to the destination (7.9) and the best qualified with 8 (Good) points were the lodging establishments and the guides. In the table you can also see the qualifications of each criterion which represent the opportunities for improvement.

Criterion	Establishments of A and B (135)	Hosting (108)	Guides (8)	Transportation to travel (61)	Transport of transfer (20)	Travel agencies (2)
Attention and service	7.7	8.1	7.5	7.8	7.8	8
Modernity or quality of the Facilities / Vehicles, Image of the staff	7.5	8.1	8.2	7.9	7.5	8
Cost	7.6	7.9	8.2	7.9	7.8	7
Total	7.6	8.0	8.0	7.9	7.7	7.7

Table 1 Quality evaluation in the service of tourist products
Source: Self Made

Table number 2 and 3 presents the rating assigned to natural attractions, cultural attractions and other tourist activities, which are consumed during the stay of tourism for entertainment. For these the tourist is asked which has visited and is asked to qualify them. The one that obtained the lowest rating are the cultural activities (3.1), followed by the beach (7.2); then cenote and archaeological zones with 7.9.

These are the regular range. However, the best rated activity was light and sound and video mapping in the destinations with 8.7, that is, they rated it as good.

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	Natural attractions			Cultural attractions		
Criterion	**Beach (41)**	**Beach (41)**	**Nature reserve (13)**	**Archaeological Areas (93)**	**Museums (27)**	**Farms (11)**
Attention and service	7.5	8	8.1	8.1	8.2	8.2
Cleaning	7.1	7.9	8.1	8.2	8.4	8.5
Conservation	7.1	7.8	7.7	8	8.4	8.2
cost	7.1	7.7	8.1	7.3	6.9	6.9
Total	7.2	7.9	8	7.9	8	8

Table 2 Quality evaluation in the service of natural attractions and cultural attractions
Source: Prepared by the authors

	Other tourist activities			
Criterion	**Cultural activities (142)**	**Nature activities (7)**	**Tours / Excursions (17)**	**Light and sound or videomapping in the destination (13)**
Attention and service	3.1	8	8.2	8
Cleaning	3.1	8	8.2	9.5
Conservation	3.1	8.6	8.2	8.5
Cost	3	8.3	8.5	8.6
Total	3.1	8.2	8.3	8.7

Table 3 Quality assessment in the service of other tourist activities
Source: Prepared by the authors

In the following tables 4 and 5 the tourist infrastructure is qualified and the results are that the bus terminal obtained the lowest rating of 7.6 (regular) and the international airport and the tourist information modules received the rating of good (8).

Criterion	**Bus terminal (47)**	**Airport (14)**
Modernity of the facilities	7.7	8.1
Signage of the place	7.4	8.1
Attention and service	7.8	7.8
Total	7.6	8.0

Table 4 Evaluation of the tourist infrastructure
Source: Prepared by the authors

Criterion	**Tourist information modules**
Attention and service	8
Image of the staff	8
Printed material	8
Total	**8**

Table 5 Evaluation of tourist information modules
Source: Self Made

Finally, we present the general results of the destination in which the public services and the accessibility to the destination in general obtain a grade of 7.6 (regular), being the lowest. And security receives 8 points that is considered good (table 6).

Public services	**Accessibility**	**Security**	**Total**
7.6	7.6	8.1	7.8

Table 6 General assessment of the destination
Source: Self Made
.

It includes a global question of the destination where tourists describe the destination as good with 8.7 points with a positive recommendation of 144 tourists of the 147 evaluated this is observed in table 7. However the rating that results from the totals of the tables 1, 2, 3 and 4 is 7.7 points, that is, as regular.

Overall rating of the destination	**Recommendation of the destination**
8.7	144

Table 7 Global question qualification of the destination.
Source: Self Made

Discussion

Regarding the results, it is agreed with the hypothesis raised where it is that the lodging establishments and the guide service were the best qualified, but this qualification is considered good (8) and it will have to look for excellence ie 10 In the second hypothesis, it was stated that in terms of the aspects of the destination, security would be perceived as excellent, but it is rated as good.

And finally, in the third hypothesis, the expected index of general satisfaction of the tourist is considered excellent, it is not fulfilled since this is considered as good. And according to the gap is 1.3 points in the general question. But in the sum of the averages of all the criteria the gap is 2.3. Therefore, it is important to generate improvement strategies in each of the results. These results have similar results with the study conducted by Bethencourt et al. (2005). Which presents the results of the evaluated criteria, but in the study the dimension of tangible elements was the lowest rating and in our study the cost that is the reliability was the lowest in the products and services of tourist consumption, that is to say that the client considers that what he received does not correspond to the contracted and paid services. And the highest scores were obtained in the dimension of tangible elements from which it differs from the study mentioned, they have a gap of 2.2 points to obtain excellence.

Conclusion

Regarding the objective of measuring the quality of service of tourists in relation to the services consumed during their stay in the state of Yucatan, the expected results were obtained and it is possible to observe the dimensions that represent a competitive advantage of these destinations and On the other hand, opportunities for improvement. Regarding the specific objective of quantifying the degree of satisfaction of the tourist according to the perception of consumption, results are obtained by dimension proposed in the design of the research.

To finish it is important to recommend a particular study of these municipalities, since they have specific characteristics that differentiate them from the other destinations considered in the total study carried out.

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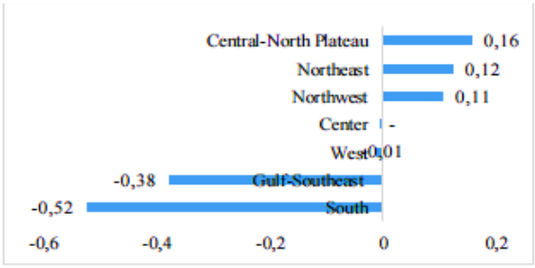

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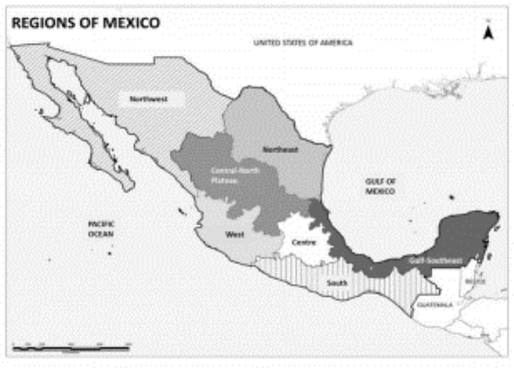

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6. South.	Chiapas; Guerrero; Oaxaca.	11.8%	10.0%	4.7%
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