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Presentation of the content

In the first article we present, *Situational analysis to increase the competitiveness of the artisanal sector of San Antonio la Isla, State of Mexico*, by AGUIRRE-BRITO, Dorian, ORDÓÑEZ-HERNÁNDEZ, Lucía, LÓPEZ-NAVA, Ashly Larissa and ARCHUNDIA-MARTÍNEZ, María Guadalupe, with adscription in the Tecnológico Nacional de México - Instituto Tecnológico de Toluca, in the next article we present, *Job satisfaction of teachers of the Electronic Engineering career in a Public Higher Education Institution*, by ZENTENO-BONOLA, Ana Luisa, CALDERÓN-RÍOS, Norma Otilia, ORDOÑEZ-HERNÁNDEZ, Lucía and BARRERA-GUADARRAMA, Andrea Itzel, with adscription in the Tecnológico Nacional de México - Instituto Tecnológico de Toluca, in the next article we present, *Job satisfaction in a clothing manufacturing company*, by ORDOÑEZ-HERNÁNDEZ, Lucía, PALOMAR-FUENTES, María del Pilar, AGUIRRE-BRITO, Dorian and CAMACHO-GUTIERREZ, Eduardo, with adscription in the Tecnológico Nacional de México - Instituto Tecnológico de Toluca, in the last article we present, *Bibliometric analysis of publications on the use of artificial intelligence in digital marketing*, by GUTIERREZ-BELTRAN, Brenda Yadira, GOMEZ-BARBA, Leopoldo and PRECIADO-ORTIZ, Claudia Leticia with adscription in the Universidad de Guadalajara.

Content

Article	Page
Situational analysis to increase the competitiveness of the artisanal sector of San Antonio la Isla, State of Mexico AGUIRRE-BRITO, Dorian, ORDÓÑEZ-HERNÁNDEZ, Lucía, LÓPEZ-NAVA, Ashly Larissa and ARCHUNDIA-MARTÍNEZ, María Guadalupe <i>Tecnológico Nacional de México - Instituto Tecnológico de Toluca</i>	1-15
Job satisfaction of teachers of the Electronic Engineering career in a Public Higher Education Institution ZENTENO-BONOLA, Ana Luisa, CALDERÓN-RÍOS, Norma Otilia, ORDOÑEZ-HERNÁNDEZ, Lucía and BARRERA-GUADARRAMA, Andrea Itzel <i>Tecnológico Nacional de México - Instituto Tecnológico de Toluca</i>	16-29
Job satisfaction in a clothing manufacturing company ORDOÑEZ-HERNÁNDEZ, Lucía, PALOMAR-FUENTES, María del Pilar, AGUIRRE-BRITO, Dorian and CAMACHO-GUTIERREZ, Eduardo <i>Tecnológico Nacional de México - Instituto Tecnológico de Toluca</i>	30-42
Bibliometric analysis of publications on the use of artificial intelligence in digital marketing GUTIERREZ-BELTRAN, Brenda Yadira, GOMEZ-BARBA, Leopoldo and PRECIADO-ORTIZ, Claudia Leticia <i>Universidad de Guadalajara</i>	43-50

Situational analysis to increase the competitiveness of the artisanal sector of San Antonio la Isla, State of Mexico**Análisis situacional para incrementar la competitividad del sector artesanal de San Antonio la Isla, Estado de México**

AGUIRRE-BRITO, Dorian†*, ORDÓÑEZ-HERNÁNDEZ, Lucía, LÓPEZ-NAVA, Ashly Larissa and ARCHUNDIA-MARTÍNEZ, María Guadalupe

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Abstract

Mexico has distinguished itself as a country of enormous cultural wealth, it is important to contribute to the growth and consolidation of the aspects that identify us, one of them is the production and marketing of handicrafts, which are also representative of the regions of our country. , the objective of this research work is to carry out a situational analysis of the artisans of San Antonio la Isla, State of Mexico and by determining the strategic balance to identify the areas of opportunity and risk. The methodology used is non-experimental research of a descriptive transactional type since it seeks to investigate the technological competence of the artisans through the application of surveys, which is obtained as a result of the evaluation of the variables mentioned below: Differentiated and exclusive products, Value-added process, Mastery of technology, Capacity for Innovation, Strategic assets difficult to imitate, Productive flexibility, Quality System. Derived from the situational analysis, the FODA matrix was carried out where risk and opportunity factors are identified and strategies are proposed to increase the competitiveness of the artisanal sector.

Situational analysis, handicraft, Competitiveness

Resumen

México se ha distinguido por ser un país de enorme riqueza cultural, es importante contribuir al crecimiento y consolidación de los aspectos que nos identifican, uno de ellos, es la elaboración y comercialización de artesanías, las cuales son representativas también de las regiones de nuestro país, el objetivo de este trabajo de investigación es realizar un análisis situacional de los artesanos de San Antonio la Isla, Estado de México y mediante la determinación del balance estratégico identificar las áreas de oportunidad y de riesgo. La metodología utilizada es investigación no experimental de tipo transeccional descriptivo ya que se busca indagar mediante la aplicación de encuestas la competencia tecnológica de los artesanos, la cual se obtiene como resultado de la evaluación de las variables que se mencionan a continuación: Productos diferenciados y exclusivos, Proceso de valor añadido, Dominio de tecnología, Capacidad de Innovación, Activos estratégicos difíciles de imitar, Flexibilidad productiva, Sistema de Calidad. Derivado del análisis situacional se realizó la matriz FODA donde se identifican factores de riesgo y de oportunidad y se propone estrategias que permitan elevar la competitividad del sector artesanal

Análisis situacional, Artesanías, competitividad

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Introduction

The family livelihood and well-being of the inhabitants of San Antonio la Isla, State of Mexico, depends to a great extent on the production and commercialisation of the representative crafts of this region, especially traditional Mexican toys such as spinning tops, baleros, yoyos, carts, jengas, little horses, etc. It is important to mention that currently the sale of this type of toys is at a disadvantage compared to Chinese products that surpass them particularly in price and in the taste of children, in another sense, the crafts are an expression of the roots and traditions of the Mexicans.

In order to conserve the cultural heritage of this country, it is necessary to preserve, promote and value the work of artisans. Therefore, this research work begins with the elaboration of the frame of reference, then the problem is identified starting from a current context, in this case, it seeks to identify through a situational analysis and the elaboration of the strategic balance the internal and external aspects that impact the economic life of the artisans of the municipality of San Antonio la Isla, State of Mexico, and derived from the results obtained, strategies are proposed that contribute to the development and competitiveness of this sector.

For the development of this work, technological competence is taken as the basis of the dynamic model for the study of competitive advantage, based on the theory of resources and capabilities of Saez de Viteri; the strategic balance proposed by Ramírez Rojas is determined and the SWOT matrix is analysed according to the literature of Hernández y Rodríguez & Pulido Martínez, whose details of the contribution applied to this work can be seen in the frame of reference.

Subsequently, the methodology is developed, the sample is determined based on the population and, based on the results of the surveys applied, the results are presented globally and by technological competence variable.

Finally, the SWOT matrix is developed and some strategies are proposed to increase the competitiveness of the handicraft sector in San Antonio la Isla, State of Mexico.

Frame of reference

Crafts are considered as a form of expression and human identity, one of the main characteristics is that they are handmade with different materials, which depend on the natural wealth of the region and are the result of the skill, ingenuity, effort and dedication of artisans to create unique pieces; according to Enrique Roncancio, quoted by (Rivas, 2018) crafts are the result of creativity and imagination, embodied in a product in whose production materials of natural origin have been rationally transformed, usually with manual processes and techniques. Craft objects are loaded with a high cultural value and due to their process they are unique pieces.

It is important to note that each handicraft object is different from the others, even when reproduced in large quantities, as each one depends on the composition of its raw material. They are unique pieces that cannot be matched to each other, even if they are made in a very similar way. This gives it a very high value, since its manual and unique creation allows the artisan to put all his creativity and imagination into his work.

In addition to the above Rivas (2018), defines crafts as a set of traditional and manual techniques that have a cultural heritage value, currently threatened or disappearing, in particular because it is based on an "oral tradition".

Crafts are created through inherited knowledge, and although it is true that the methods or techniques are enriched over time, the figure of the designer is still present as a key element for the idealisation of each object.

The techniques linked to traditional crafts are part of the intangible heritage, whose safeguarding is defined by the Convention for the Safeguarding of the Intangible Cultural Heritage (the set of practices, knowledge and skills that communities and, in certain cases, individuals recognise as part of their cultural heritage) adopted by UNESCO in October 2003. These skills are the expression of the history, culture and identity of peoples, the continuity of which they embody.

UNESCO stresses and encourages the use of the most effective means for this safeguarding, such as inventories of knowledge and techniques, their transmission from teacher to pupils, the identification of "living human treasures", talented custodians of an ancestral legacy and bearers of traditions (Etienne-Nugue, 2009).

Mexico has distinguished itself for having an enormous cultural wealth, heritage of the inheritance of indigenous peoples and of the resources of the different regions, (Artesanías de México, 2023) refers that our country has 62 ethnic groups and each one of them has its own folk art characteristics, representing the different states. The origin of Mexican handicrafts comes from rural areas, thanks to the fact that artisans have made use of the natural resources of their region, such as clay, wood, textiles, talavera, copper, among others to create their designs. In another sense, it also states that the trade of Mexican handicrafts is privileged, due to the fact that it has traditional textures and patterns that have been well received in national and international tourist areas; In order to promote the work of artisans in Mexico, as well as to contribute to the generation of greater dissemination, initiatives have been created such as Artesanía de México, which promotes Mexican crafts from different parts of Mexico.

In our country, the National Fund for the Promotion of Handicrafts (FONART) is a public trust fund of the Federal Government, under the Ministry of Culture, which was created in response to the need to promote the country's handicraft activity and contribute to the generation of a higher family income for artisans, through their human, social and economic development (FONART, 2023).

It is important to establish that handicrafts and crafts are concepts that can be confused, in the words of the Grupo Impulsor de Artesanía y Manualidad (Antrop. Marta Turok, Antrop. Luz Elena Arroyo, Antrop. Arturo Gómez, Arq. Nelly Hernández, and Arq. René Carrillo), refer to the following "It was a widespread practice that, in a large number of fairs and exhibitions sponsored by various public entities supporting the sector, both types of work were exhibited under the cover of the term "crafts" as if they were the same thing".

This confusion was a constant in government programmes that proposed the promotion of micro, small and medium-sized enterprises (MSMEs), that sought to promote self-employment and that saw handicrafts as an early alternative for low-cost production to generate businesses. This situation provoked the irruption of handicrafts in programmes aimed at supporting traditional artisans whose already minimal budgets were further diminished by this situation.

FONART's Manual for differentiating between crafts and handicrafts (Grupo Impulsor Artesanía y manualidad, 2008) establishes the following concepts:

Crafts. It is an object or product of community cultural identity, made by continuous manual processes, aided by rudimentary implements and some of mechanical function that lighten certain tasks. The basic raw material transformed is generally obtained in the region where the artisan lives. The mastery of traditional techniques of community heritage allows the craftsman to create different objects of varying quality and mastery, imbuing them with symbolic and ideological values of the local culture. Crafts are created as durable or ephemeral products, and their original function is determined at the social and cultural level; in this sense, they can be used for domestic, ceremonial, ornamental, costume or work purposes. Nowadays, the production of handicrafts is increasingly directed towards commercialisation. The appropriation and mastery of native raw materials means that handicraft products have a community or regional identity of their own, which allows them to create a line of products with particular shapes and decorative designs that distinguish them from others.

Handicrafts. It should be understood as that object or product that is the result of a manual or semi-industrialised transformation process, from a processed or prefabricated raw material. Both the techniques and the activity itself do not have an identity of community cultural tradition and are lost in time, becoming a temporary task marked by fashions and practised at an individual or family level. Creativity in handicrafts achieves important aesthetic values in the domain of technical transformation and ornamentation, but these lack the symbolic and ideological values of the society that creates them.

The quality of handicrafts is as variable as that of handcrafts: there are products ranging from very simple to very elaborate in terms of shapes, designs and decorations.

Contrary to the handcraft tradition, handicrafts are governed by the present times and tend to standardise their production with the phenomena of globalisation and mass culture.

Hybrid. It is the product that preserves identity features, the result of a mixture of techniques, materials, decorations and symbolic reinterpretations in objects made with handcraft processes that combine aspects of cultural dynamism and globalisation, but do not manage to consolidate themselves as community cultural products. One of their main characteristics is the mixing of elements of different nature, both craft and handcraft, in such a quantity or in such a way that they no longer belong to either of these two categories and form a new category. In some cases its evolutionary process comes to be configured as a craft tradition.

The State of Mexico has a wide range of handicrafts according to the communities belonging to it, the most outstanding cases being Tenancingo with its artisan overflow, Metepec and the Tree of Life, and from there San Antonio la Isla and Santa María Rayón with the creation of wooden handicrafts, the latter being affected in a certain way by climate change, which makes them look for new ways of making their handicrafts, due to the fact that their raw materials are running out or they have greater restrictions to obtain them.

San Antonio la Isla is a great producer of different types of handicrafts, but due to the lack of raw materials they are being lost, for example, bone handicrafts are made in this municipality, but they are no longer made in large quantities because it is very laborious and leaves low income, and also because the bone they use is beef horn, which is becoming increasingly difficult to obtain, as it was obtained from the slaughterhouses in the surrounding area and part of Mexico City, but the bone is becoming thinner and impossible to handle, as it used to be (López Alvarez, 2019).

According to the self-assessment report on the entity's overall performance for fiscal year 2022 (FONART, Informe de autoevaluación sobre el desempeño general de la entidad del ejercicio fiscal 2022), through the Support for Strategic Artisanal Projects component, benefits were obtained for the Strategic Artisanal Project San Antonio la Isla, State of Mexico. This artisan workshop is dedicated to the production of balero, yoyo and spinning top, part of traditional Mexican toys. With the FONART investment, the sales, decorating and drying areas were refurbished, chairs and work tables, shelves, shelves, shelves, tools such as a band saw, a single-phase motor and a spinning top machine were acquired.

With the purchase of raw materials, they have been able to create a bank of raw materials to be able to work all year round, as pine wood can sometimes increase in cost, due to the fact that there is only one supplier in the community, which means that the wood is purchased at the cost offered to them, without looking for another alternative that would allow them to be more competitive in the cost of the raw material and therefore in the product; it also depends on the seasonal nature of the supplier, putting production at risk. With regard to the training they received, they learned how to offer their products and avoid haggling, they improved their customer service and the use of digital platforms in order to access other types of customers.

According to what is published in the Book - Tourism Guide of San Antonio la Isla (Carrillo, 2020), this is one of the smallest municipalities in the state of Mexico, located in the legendary valley of Matlatzinco, today the valley of Toluca; its origin is found in the historical context of the indigenous lordship of Calimaya-Tepemaxalco. Its territory was consolidated since its foundation in the 16th century. During the colonial period, its inhabitants fought for their political autonomy and in 1847 they managed to become a municipality. Currently, the municipality of San Antonio la Isla is made up of two original localities: San Antonio la Isla (Municipal Head) and San Lucas Tepemajalco (Municipal Delegation). Both are riverside towns with traditions and customs of an ancestral culture, Otomí and Matlatzinca, respectively, which developed in what was once the lake area of the Alto Lerma.

The visitor arriving to these island lands through the old Toluca-Tenango del Valle road or through the new Lerma-Tenango del Valle highway, can perceive that the population settlement is located in the last foothills of the imposing Xinántecatl or Nevado de Toluca; on his way he contemplates a landscape between mountains and valleys, natural attractions that are a delight for the senses.

In the main street there are shops where a great variety of handicrafts are sold. The Casa de las Artesanías (House of Handicrafts) is a space where creativity meets: yoyos, spinning tops, perinolas and baleros, as well as the polvera as a unique piece, are made with dexterity.

The population of San Antonio la Isla is characterised by the manufacture of wooden handicrafts, a skill that has made the islanders prodigious in the art of turning, which has given them a national and international identity. The use of the electric lathe, which replaced the violin lathe, is an indispensable tool for the craftsman. The skill of their hands to mould into a piece of wood: spinning tops, yoyos, baleros or polveras is masterly; their creativity is evident when painting their pieces with brightly coloured lacquers, magically decorating their works. The gurbia and chisels are the instruments of the islanders' handicraft creations, which, with their indentations and sgraffito, give life to popular art (Carrillo, 2020). It is important to know the current situation of the handicraft producers of San Antonio la Isla, this allows us to define the actions to follow in order to continue in the market.

This research work seeks to identify, through a situational analysis and the elaboration of a strategic balance, the internal and external aspects that have an impact on the economic life of the artisans of the aforementioned municipality.

A situational analysis is an in-depth study of the organisation in which internal elements such as strengths and weaknesses and external elements such as risks (threats) and opportunities are identified (Sulser Valdéz & Pedroza Escandón, 2004). This study is of utmost importance as it allows us to identify the position of the company and the context in which it has been developing.

Situational analysis is known as SWOT (Strengths, Weaknesses, Opportunities, Weaknesses and Threats), SWOT (Strengths, Weaknesses, Opportunities, Opportunities and Threats) and SWOT (Strengths, Opportunities, Threats and Weaknesses), for the purposes of this paper the abbreviation SWOT will be used.

As published by (Ramírez Rojas, 2009), one of the fundamental aspects of strategic planning is the situational analysis, also known as SWOT analysis (strengths, weaknesses, opportunities and threats), which enables the collection and use of data that allows to know the operating profile of a company at a given time, and from this to establish an objective diagnosis for the design and implementation of strategies to improve the competitiveness of an organisation, it is important to clarify that this type of analysis is applicable to any type of company regardless of its size or nature.

As part of the conclusions of the research article (Ramírez Rojas, 2009), he comments that the proposals for improvements should be oriented both towards reducing weaknesses, reinforcing and maintaining strengths and searching for suitable opportunities for the company's capabilities, as well as providing a defence against external threats. Accepted improvements should be congruent with the firm's operating conditions or means to grow its skills and resources. It also defines a competitive advantage as a special skill or ability that a company manages to develop, and that places it in a position of preference in the eyes of the market; a product or service that the market perceives as unique and decisive, constituting a differential factor in the characteristics of a company.

For a competitive advantage to be truly useful, it must also be sustainable, i.e. the company must be able to maintain it for a reasonable period of time; to achieve this, the advantages identified must meet two criteria: a) have their origin in a strength or strong point of the company, not in a temporary circumstantial event, and b) possess such characteristics that it is difficult for the competition to imitate in the short term.

(Betancourt Guerrero, 2014) refers that the basic model proposed in the early sixties by a group of professors at Harvard Business School, in a first phase, the formulation of strategies rests on the well-known SWOT model, which records the alignment that should exist between the strengths and weaknesses of the organisation, derived from its internal evaluation, and the opportunities and threats of the environment, derived from its external evaluation. In the words of the proponents of this model, the economic strategy will be considered as the fit between the qualifications and the opportunity that positions a company in its environment.

Once the strategy has been evaluated and selected, the next phase corresponds to its implementation or operationalisation, in accordance with the resources allocated in the preceding phase.

The elements of SWOT are combined through a matrix to locate the maximum opportunities and strength of the company, or the weaknesses and threats (Hernández y Rodríguez & Pulido Martínez, 2011) from the matrix the following main combinations are derived:

Maxi-maxi strategy. Corresponds to the maximum strengths and maximum opportunities, it allows the generation of several strategic ideas with the combination of these two elements and it is possible to obtain competitive advantages in the organisation since its strengths are known.

Maxi-mini strategy. Combines the maximum strengths with the minimum threats; when the threats are for an entire sector of direct competitors, this combination allows strategic ideas to be obtained to convert the threat into an opportunity, or in its case, to take advantage of the strengths so that the threat generates less impact.

Mini-maxi strategy. In this combination, the company develops programmes and seeks to implement those tactics that make it possible to reduce weaknesses and make the most of opportunities.

Mini-mini strategy. This combination presents the minimum conditions of the company due to its weaknesses and threats, it is necessary to act urgently, especially internally, to define some defensive tactics and to mark as a priority the overcoming of the weaknesses and to be able to face the threats in the best possible way. Using the methodology discussed in the preceding paragraphs, (Calderón Rios, Zenteno Bonola, Ordoñez Hernandez, & Arellano Cordova, 2022) in their article *Determinación de la Capacidad Tecnológica como fuente generadora de valor, de la industria del calzado de la Plaza Azul, San Mateo Atenco, Estado de México*, propose some of the following strategies to raise technological competence:

Hire a certifying body to implement the QMS, Acquire cutting-edge technology for the production of footwear, create a strategic alliance with educational institutions that have the career of Design to generate innovative models that manage to meet the changing needs of the market, create a strategic alliance with educational institutions that have the career of Design to generate innovative models that manage to meet the changing needs of the market, suggests conducting a market study to identify the competitive advantage of the product and make it known to generate preference for the brand, among others.

The results of the research show that the main strength and the greatest area of opportunity is in production flexibility and differentiated and exclusive products.

In their research work and as a result of the determination of the competitive advantage for the footwear sector, by means of a SWOT matrix (Calderón Rios, Ordoñez Hernández, Aguirre Brito, & Valdez Ortega, 2021) they propose to reinforce the image and prestige with the purpose of establishing a barrier for competitors, the creation of a distinctive image for the brand, as well as the design of a logo and slogan that distinguishes and represents them, taking advantage of the image and prestige they possess, establishing strategic alliances with suppliers in the region, training them in the processes for the development of the value chain; also proposes to establish alliances of temporary or permanent nature between producers of San Mateo Atenco to face the competition and respond to demand, since a present problem is the low installed capacity and venture into marketing through social networks by developing your page on Facebook, and sell through free market or other online sales platforms, the implementation of the strategies described above will increase the strategic competitiveness of manufacturers of footwear Blue Square San Mateo Atenco, Edo. de México. (Sáez de Viteri Arranz, 2000) in his article "El potencial competitivo de la empresa: recursos, capacidades, rutinas y procesos de valor añadido" presents a dynamic model for the study of competitive advantage, based on the theory of resources and capabilities, which postulates that competitive advantage resides in the generators of value, which (Bueno, 1993) defines as "The relative position compared to its competitors and the aptitude or capacity to sustain it in a lasting way and to improve it, if possible".

In the words of (Sáez de Viteri Arranz, 2000) these distinctive core competences, understood as the resources, capabilities and routines that underpin the core competences, must be sought both internally and externally. Introspection to see what the company knows how to do and how, and from the customers' appreciation of the value the company is adding. Sometimes the customer's appreciation of the company's products does not match what the company believes is a source of differentiation or technological excellence.

The concept and component of distinctive core competencies are shown in the table below.

Concept and components of distinctive core competences
<p>STRATEGIC COMPETENCE. Project Management and coordination of value drivers to build a competitive strategy that meets stakeholder demands and creates added value for customers in multiple markets.</p> <p>COMPONENTS</p> <ul style="list-style-type: none"> - What the company wants to be and where it wants to go = Vision, mission and objectives. - What it is and what it knows how to do = Resources. - What it is capable of being and doing = Capabilities. - Management and coordination of value generators.
<p>TECHNOLOGICAL COMPETENCE. It is the ability to design, buy, manufacture and sell.</p> <p>COMPONENTS</p> <ul style="list-style-type: none"> - Stock of technologies - Know-how to apply them - Innovation capacity
<p>PERSONNEL COMPETENCE. The organisation's Etos, the set of people's capabilities, known or unknown and used or not.</p> <p>COMPONENTS</p> <ul style="list-style-type: none"> - Aptitude or knowledge - Craft or skills - Attitude or behaviours
<p>ORGANISATIONAL COMPETENCE. This refers to the coordination of value drivers across the organisational structure of the company.</p> <p>COMPONENTS</p> <ul style="list-style-type: none"> - Task design - Routines or methods - Power structure - Production and information system

Table 1 Concept and components of core competencies. Source: Adapted from Sáez de Viteri (2000).

The author also mentions that value generators, referring to resources, capabilities and routines, must be valuable in such a way that they can exploit an opportunity or neutralise a threat, rare in the sense that they are not possessed by other companies, inimitable because they have been shaped internally within the organisation and therefore unique and irreplaceable.

According to the proposal of Sáez de Viteri (op. cit.) regarding value generators, this research focuses on the basic distinctive technological capabilities and the components of the same that refer to the stock of technologies, know-how to apply them and capacity for innovation, which will serve as the basis for the design of the data collection instrument.

According to (Peñaloza, 2007) empirical and theoretical efforts aim to establish a strong link between technology and innovation in the creation of competitive advantages, the latter being understood as distinctive qualities of a product, a person or a country that give it a certain superiority over its peers. In general, two types of competitive advantages can be distinguished: static and dynamic. The former are related to natural resources; the latter are associated with knowledge and technological mastery, so that companies achieve competitive advantages through innovations and, as we have seen, in order to innovate, scientific and technical knowledge is necessary even in the case of non-technological innovations, as these are generally supported by a technological component. However, it is important to clarify that having technology does not imply per se a distinctive quality, as it can be used by anyone with the appropriate resources.

In his thesis for the degree of Lic. In his thesis for a degree in International Economic Relations, (Lopez Alvarez, 2019) makes the following assessment: Given the case of handicrafts it is unlikely to have a technological advantage because it is usually 30% in machine and 70% manually, therefore the machines used in the process of toy crafts basically only focuses on what is the lathe, the saw, electric cutter and in some cases a painting machine, the latter is only when it is required urgently as the designs are made by hand as well as their assemblies.

Problem statement

The production of traditional crafts and toys is the second largest activity in the culture sector, comprising activities such as ceramics, textiles, pottery, basketry, wood, metalwork, lapidary, stonework, glass, pottery, cardboard and paper, saddlery, fur, as well as traditional sweets, according to the Cultural Satellite Account of Mexico (CSCM), in 2021, the Culture sector generated 736 725 million current pesos. Of these, crafts contributed 153,437 million pesos, which represented 20.8 % of the Gross Domestic Product of the culture sector by general areas (INEGI, 2023), which is more than what the performing arts, shows, visual arts, plastic arts, music, concerts and the publishing industry, among others, generated as a whole.

In another sense, the family sustenance and social wellbeing of the population of San Antonio la Isla depends to a large extent on the commercialisation of handicrafts, which is why this research seeks to understand the current situation of the handicraft sector and to identify the impact of internal and external aspects on the consolidation of this important sector on which the vast majority of the inhabitants of this municipality depend.

It is important to emphasise that resources in themselves are not providers of competitive advantage, but that this depends on how they are used and how skilfully they are managed. Therefore, the ability to combine the tangible and intangible resources available to the company gives rise to its capacities or competencies, according to Amit & Shoemaker, 1992, cited by (Sáez de Viteri Arranz, 2000).

For the artisans it is of utmost importance to be aware of the causes that are adverse to them in the commercialisation of their products and those that represent strengths and opportunities for their growth and consolidation of their business.

Methodology

The design of this work is non-experimental research of a descriptive transectional type, according to (Hernandez Sampieri, Fernandez-Collado, & Baptista Lucio, 2008) in this type of research phenomena are observed as they occur in their natural context, and then analysed, it is of a transectional type because, through analysis, The type of study is descriptive, which seeks to specify the properties, characteristics and profiles of people, groups, communities or any other phenomenon that is subjected to analysis. On the other hand, descriptive cross-sectional designs, which aim to investigate the incidence of the modalities or levels of one or more variables in a population, are purely descriptive studies. The procedure consists of locating one or several variables in a group of people, living beings, objects, situations, contexts, phenomena, communities, etc. and providing their description. As for the references or primary sources, these provide first-hand data, such as interviews or surveys of the artisans who are in San Antonio la Isla, as they are the only ones capable of providing specific and accurate data on all the information that will be provided in this research.

From the study problem posed and in correspondence with the state of the art, the principles proposed by (Ramírez Rojas, 2009) will be followed, this procedure does not contemplate the necessary elements to give statistical validity to the investigation, elements that are incorporated in the present investigation. In addition to the determination of the strategic balance, the SWOT matrix is elaborated in which the proposed strategies are developed in order to increase competitiveness in the production and commercialisation of handicrafts in San Antonio la Isla in the State of Mexico. In order to facilitate the understanding and practical application, the detailed procedure that was carried out is shown below:

1. Identification of the analysis criteria. According to Sáez de Viteri (op. cit.), the technological competitive position is the result of comparing the key competences demanded by the competition (external analysis) with the key competence that the company possesses (internal analysis). Technological competence is defined as a result of the following variables:

- Differentiated and unique products.
- High value-added processes.
- Technological mastery.
- Capacity for innovation.
- Strategic assets that are difficult to imitate.
- Production flexibility.
- Quality system.

2. Determination of the real conditions of action in relation to the internal and external variables of the analysis.

a) Delimitation of the field of action. The study was carried out taking as its universe the handicraft producers of San Antonio la Isla in the State of Mexico. According to the publication by (Contreras, 2023) the municipality has 716 artisans registered, who not only work on wood but are distinguished by pieces in other branches such as horn, bone, metalwork, corn leaf, among others.

b) Determination of the sample size. Since the number of artisans in the municipality of San Antonio la Isla is known, the formula was used to determine the sample size of a finite population (Munch & Ángeles, 1998).

$$n = \frac{k^2 * p * q * N}{(e^2(N-1)) + k^2 * p * q} \quad (1)$$

Where:

N = 716

k = 1.645 Z value for 90% confidence level

p = 0.5 probability of success (determining Strategic Competitiveness)

q = 0.5 probability of failure (determine Strategic Competitiveness)

e = 0.10 maximum permissible error

$$n = \frac{(1.645)^2 * (0.5) * (0.5) * (716)}{((0.10)^2(716-1)) + (1.645)^2 * (0.5) * (0.5)} = 61.889 \quad (2)$$

The result of the sample size is 61,889, which should be rounded to 62 because it refers to persons.

c) Collection of information. The structured interview technique was used, for which a questionnaire was designed consisting of a set of strategically planned questions regarding the variables to be measured (Hernández, Fernández, & Baptista, 2010).

Given that the list of strengths (F), weaknesses (D), opportunities (O) and threats (A) can be very extensive, it was limited to consider only the most relevant in each section. For the selection of the elements that make up the sample, convenience sampling was used, in which the elements to be sampled are selected because they are accessible through existing contacts (Munch & Ángeles, 1998).

3. Assignment of a weighting for each of the strengths, opportunities, weaknesses and threats. For each of the factors mentioned in point 1, respondents were asked to assign a rating of 1, 2 or 3: where 3 denotes the highest level of performance, 2 the medium level and 1 the lowest level. In this way, the differences between them can be established in order to rank them in order of importance.

4. Calculation of the results. Based on the average score obtained for each variable, a matrix was drawn up with the totals and the individual contribution of each variable.

5. Determination of the strategic balance. The strategic balance is the relationship between the optimisation factor (FO) and the risk factor (FR) of an organisation and can either favour or inhibit the development of competitive strategies (Ramírez Rojas, 2009).

The optimisation factor indicates the organisation's favourable position with respect to its competitive assets and the circumstances or events that can potentially be a source of competitive advantage in the near future.

The risk factor shows an unfavourable position of the organisation, i.e. it shows a competitive liability coupled with conditions that limit the organisation's competitive position.

$$FO = F + O$$

$$FR = D + A$$

$$BE = FO - FR$$

The strategic balance of an organisation is better as long as the difference between the optimisation factor exceeds the risk factor.

6. Elaboration of the SWOT matrix and presentation of proposals. The answers of the interviewees were concentrated in a matrix and then plotted. Based on the previous results, the SWOT matrix was elaborated and from it conclusions were drawn regarding the general situation of the handicraft industry, as well as the individual contribution of each of the variables studied. Finally, the SWOT matrix constitutes the basis for the elaboration of proposals for strategies to increase competitiveness and to contribute to the success of the handicraft sector in San Antonio la Isla, State of Mexico.

Results

The results presented are the product of the information obtained through the structured interviews, to arrive at these results it was necessary to carry out the processing of data derived from these interviews and the analysis and interpretation of the information, the themes referring to the SWOT (Strengths, Opportunities, Weaknesses, Threats) of the artisan sector of the municipality of San Antonio la Isla were determined, the Evaluation of the Risk Factors and the Optimization Factor was carried out, concluding with the SWOT Matrix. The results matrix was elaborated based on the average score obtained for each variable.

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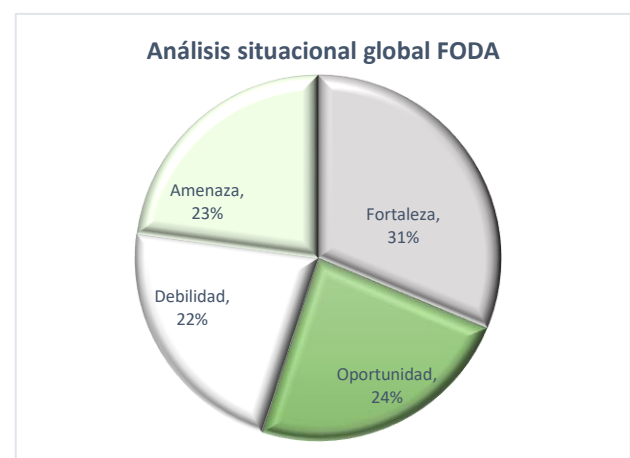
Table 2 shows the total weighting of the strengths, weaknesses, opportunities and threats.

Variable	F	D	O	A
1. Differentiated and exclusive products	180 29%	155 25%	151 24%	137 22%
2. High value-added process	172 34%	95 19%	117 23%	129 25%
3. Technology proficiency	154 31%	121 24%	123 24%	105 21%
4. Capacity for innovation	181 36%	113 22%	94 19%	118 23%
5. Strategic assets that are difficult to imitate	179 33%	119 22%	120 22%	124 23%
6. Production flexibility	157 29%	124 23%	135 25%	127 23%
7. Quality system	114 28%	78 19%	123 30%	92 23%
Total	1,137	805	863	832
Participation in %	31%	22%	24%	23%

Table 2 Overall situational analysis and by variable

Source: Own elaboration

The information in table 2 is analysed horizontally, showing the percentage of participation of the company's internal and external conditions for each of the 7 variables established by the situational analysis to determine competitiveness. For example, for variable 2. High added value process, its strengths represent 34%; its weaknesses 19%; opportunities represent 23% and threats 25%. On the other hand, if the analysis is carried out vertically, the strengths, weaknesses, opportunities and threats of the company can be determined in a general way, as shown in graph 1 below.



Graphic 1 Global SWOT situational analysis

Source: Own elaboration

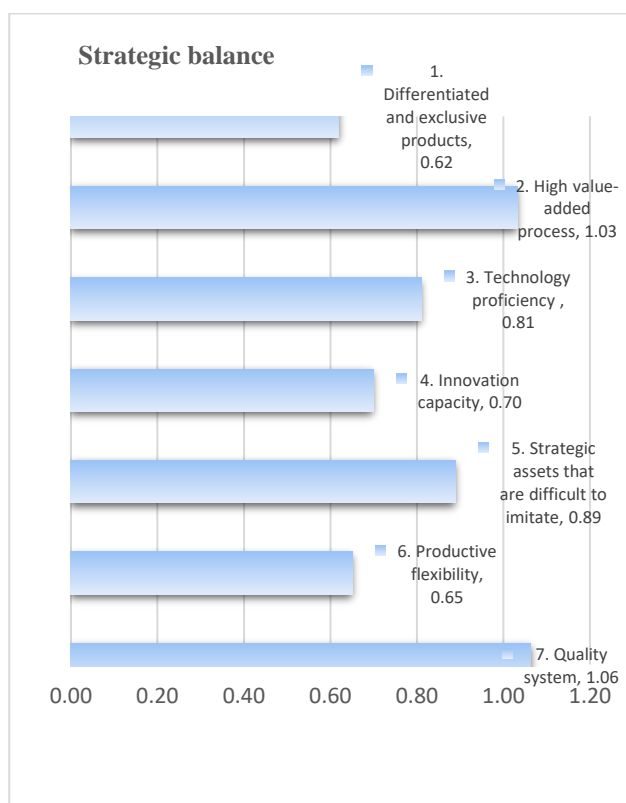
Subsequently, the overall and per variable strategic balance (BE) was determined, which is the relationship between the optimisation factor (FO) and the risk factor (FR).

The results are shown in table 3.

<i>Strategic variables</i>	<i>Optimisation factor (FO)</i>	<i>Risk factor (FR)</i>	<i>Balance (BE)</i>
1. Differentiated and exclusive products	5.25	4.63	0.62
2. Processes with high added value	4.59	3.56	1.03
3. Mastery of technology	4.40	3.59	0.81
4. Capacity for innovation	4.37	3.67	0.70
5. Strategic assets that are difficult to imitate	4.75	3.86	0.89
6. Productive flexibility	4.63	3.98	0.65
7. Quality system	3.76	2.70	1.06
Total	31.75	25.98	5.76

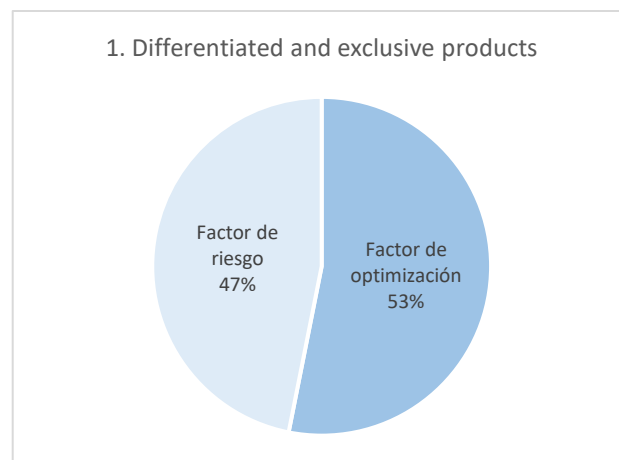
Table 3. Overall strategic balance and by factor
Source: Own elaboration

The impact of the strategic balance per variable and its contribution to the global strategic balance is presented in graph 2, on the right side of the graph those variables with a positive strategic balance and on the left side of the graph those variables that represent a risk with a negative strategic balance, for the case of the handicrafts of San Antonio la Isla, only positive factors were found.



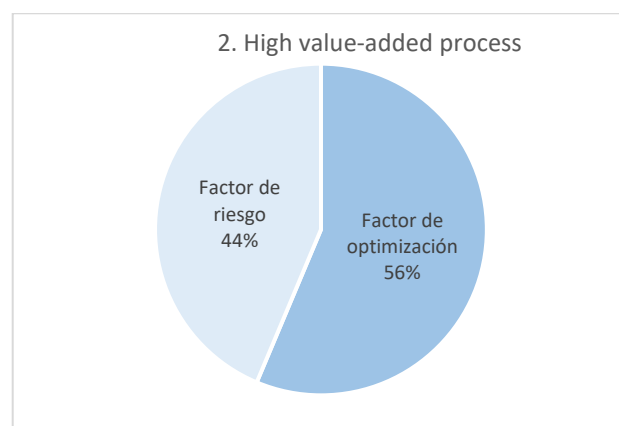
Graphic 2 Strategic balance impact by variable
Source: Own elaboration

Differentiated and exclusive products is the one that represents the risk factor with the greatest vulnerability in the global balance of technological competitiveness, the weakness detected is that the handicrafts that are manufactured are traditional models, leaving out innovation and the creation of new models to remain in the taste of the clients.



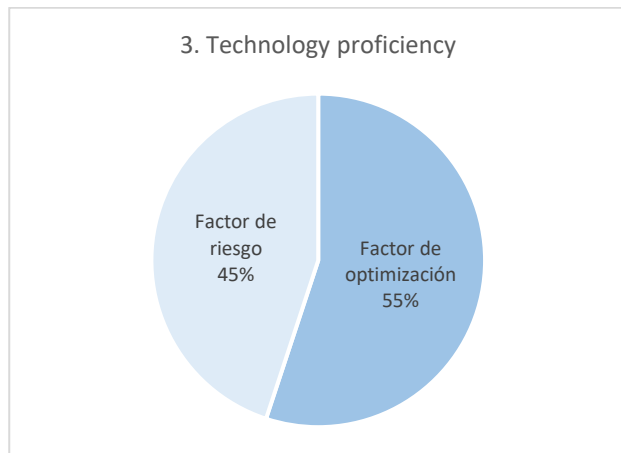
Graphic 3 Differentiated and exclusive products
Source: Own elaboration

According to the information presented in the following graph, the strategic variable referring to high added value processes is the second that generates the greatest positive impact with 56%, the variable that determined these results was that in the manufacturing process all activities add value.



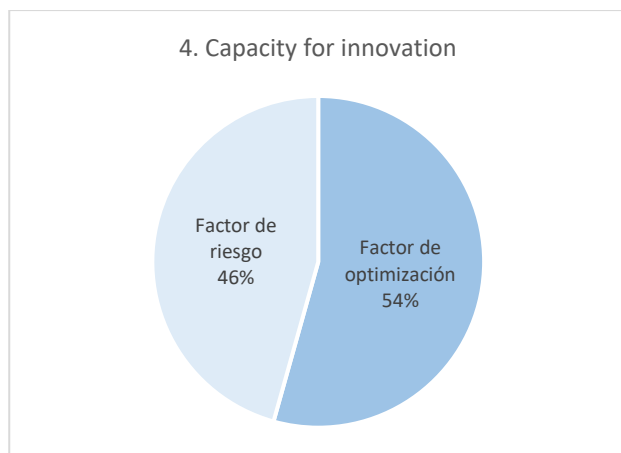
Graphic 4 Value-added processes
Source: Own elaboration

With respect to variable 3. Mastery of technology, the highest score was obtained for strength, which refers to the fact that the company has personnel trained in the use of the technology used within the company. It is important to clarify that the technology used for the production of handicrafts is rather basic, such as cutters, polishing machines, lathes, etc.



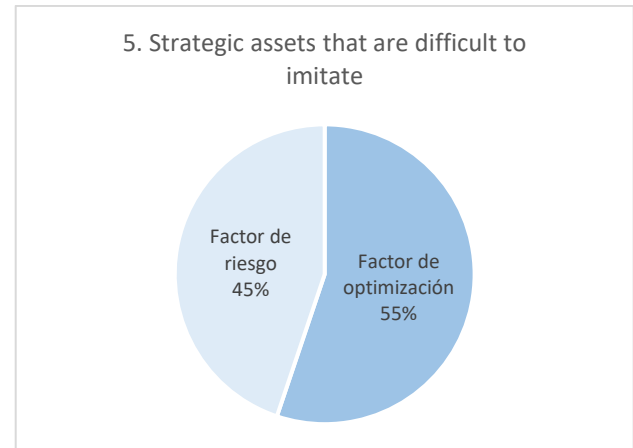
Graphic 5 Technology proficiency
Source: Own elaboration

On the other hand, graph 6 shows the strategic balance of the capacity for innovation, in which we can identify a relatively low appreciation of governmental support and support from different educational entities to promote innovation, although the artisans say that if the ideas proposed by the staff are taken into account and that they are susceptible to be developed, then they will be taken into account



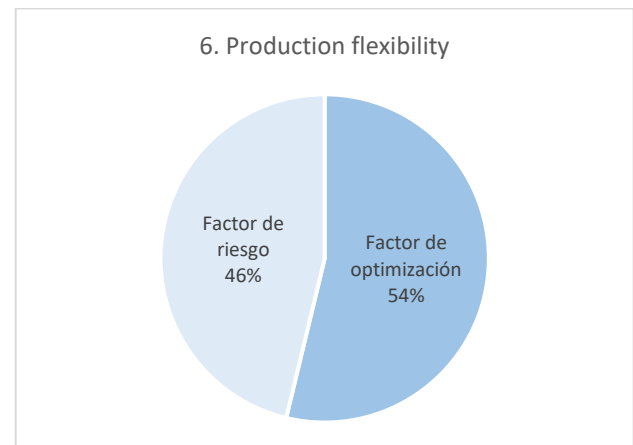
Graphic 6 Innovation capacity
Source: Own elaboration

With respect to the strategic assets that are difficult to imitate, shown in graph 7, the balance represents an optimisation factor greater than the risk factor, this result originates in the strength, as it had a higher score, which refers to the use of human talent, motivated, integrated and trained for the manufacture and distribution of handicrafts.



Graphic 7 Strategic assets that are difficult to imitate
Source: Own elaboration

In graph 8 related to productive flexibility, the risk factor rated with the lowest score and which does not allow a balance to be reached with the optimisation factor refers to the fact that the company cannot make changes in the productive process, remembering that handicrafts are made in a traditional way and by cultural inheritance from generation to generation.



Graphic 8 Productive flexibility
Source: Own elaboration

According to the information presented in the following graph, the strategic variable with the greatest impact in the analysis carried out is the one referring to quality systems, where the optimisation factor is 58% in relation to the risk factor of 42%.

Finally, the SWOT matrix, shown in table 4, displays the most representative elements of the situational analysis based on the results obtained and proposes some strategies derived from the combinations of the SWOT elements.

Factors	Strengths	Weaknesses
Factors Factors	F1. All innovative ideas brought by staff are taken into account so that they can be developed. F2. The products sold are original models for pre-determined markets. F3. Use of human talent, motivated, integrated and trained where for the manufacture and distribution of handicrafts, the company has the necessary qualified personnel..	D1. The handicrafts produced are traditional models. D2. The company cannot make changes to the production process. D3. The enterprise makes minimal use of technology. D4. Manufacturing processes can or are imitated by competitors.
Opportunities	Maxi-Maxi	Maxi-Mini
O1. The demand for handicrafts are exclusive models by the market. O2. Existence of different methodologies to achieve flexibility in the elaboration of products. O3. The implementation of certifications accompanied by the implementation of continuous improvement tools.	Continue with the development of original models representative of the region and take into account the ideas contributed by the staff so that innovative items can be developed to complement the product offer. Continue with its strategies for training, motivation and integration of human talent. Seek flexibility in the production of products, without losing sight of their handicraft quality. To contract a certifying body to implement the QMS in order to respond to market demands.	The biggest weakness is that they manufacture traditional models, without much change in the production process and minimal use of technology, however, this weakness also represents one of the characteristics of the handicrafts. To maximise one of the opportunities detected is to implement a QMS to measure the quality of the products.
Threats	Mini - Maxi (D-	Mini -Mini
A1. Supply by competitors of exclusive and highly innovative handicraft models. A2. Competitors offering different types of handicrafts that meet the needs demanded by the market. A3. Competition that responds quickly to changes in consumer demand..	Conduct a market study to identify the demand for real handicrafts and products made using a technological production process. Respond quickly to consumer demand, taking into account the innovative ideas of the workers and training them on an ongoing basis.	Identify consumer demand, generate innovative models that complement the supply of craft products. Participate in training programmes on innovation in government programmes.

Table 4 SWOT matrix

Source: Adapted from Hernández y Rodríguez & Pulido Martínez (2011)

Conclusions

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According to the analysis carried out and after having applied the proposed methodology, it can be concluded that there is an overall positive balance, since in general the optimization factor exceeds the risk factor by a certain margin, the variables that are closer to the risk factor are: Differentiated and exclusive products, and Productive flexibility; in this sense it is important to highlight, that one of the characteristics of handicrafts is that they are representative products of a region or community so they cannot be differentiated and/or exclusive to one producer; made through manual processes learned generationally, the technological use is limited to rudimentary implements and some of mechanical function, so productive flexibility is not a factor susceptible to modernisation, however, these variables can be recognised and visualised as an area of opportunity because they are desirable qualities in a handicraft.

As for the variable that the producers identified as a strong point, it is related to the quality of the product and the service offered, however, they are aware of the need to improve in order to respond to market demands, so it is suggested to implement and certify a Quality Management System, participate in government support programmes for the promotion of handicrafts, continue with training for employees and identify consumer demand and respond in a timely manner to their needs.

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Job satisfaction of teachers of the Electronic Engineering career in a Public Higher Education Institution**Satisfacción laboral de los docentes de la carrera de Ingeniería Electrónica en una Institución de Educación Superior Pública**

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Abstract

In the present investigation, the level of satisfaction that exists between the base academic personnel and the honorary personnel who are working as teachers in the electronic engineering career in a Public Higher Education Institution was determined. Using a descriptive study, using the descriptive transectional design and applying a data collection instrument created from the Job Satisfaction Scale proposed by Warr, Cook and Wall (1979). On the scale, the intrinsic factors that were considered are: freedom to choose one's own work method, recognition obtained for a job well done, assigned responsibility, the possibility of using one's own abilities, possibilities of promotion, contract conditions and the variety of tasks. that are done at work. Regarding extrinsic factors, there were: physical conditions of work, co-workers, immediate superior, salary, relations between management and workers in the company, management, work hours and job stability. The participating population was 22 people, which represents the entire academic plant that is in the study program. The results showed that the fee-based staff is satisfied in 69% with the intrinsic factors and 57% with the extrinsic ones; while those of base are satisfied 49% for the first and 24% for the second.

Resumen

En la presente investigación se determinó el nivel de satisfacción que existe entre el personal académico de base y el de honorarios que se encuentran laborando como docentes en la carrera de ingeniería electrónica en una Institución de Educación Superior Pública. Empleando un estudio de tipo descriptivo, utilizando el diseño transeccional descriptivo y aplicando un instrumento de recolección de datos creado a partir de la Escala de Satisfacción Laboral propuesta por Warr, Cook y Wall (1979). La escala los factores intrínsecos que se consideraron son: libertad para elegir el propio método de trabajo, reconocimiento obtenido por el trabajo bien hecho, responsabilidad asignada, la posibilidad de utilizar las propias capacidades, posibilidades de promoción, condiciones de contrato y la variedad de tareas que se realizan en el trabajo. Respecto a los factores extrínsecos se tuvieron: condiciones físicas del trabajo, compañeros de trabajo, superior inmediato, salario, contratación, relaciones entre dirección y trabajadores en la empresa, dirección, horario de trabajo y estabilidad en el empleo. La población participante fue de 22 personas, que representan la totalidad de la planta académica que está en el programa de estudio. Los resultados mostraron que el personal por honorarios está satisfecho en un 69% con los factores intrínsecos y un 57% con los extrínsecos; mientras que los de base se encuentran satisfechos un 49% para los primeros y un 24% para los segundos.

Work satisfaction, Teaching, Public sector

Satisfacción laboral, docencia, sector público

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Introduction

One of the aspects that any organisation should consider is to diagnose the level of satisfaction of its employees, because it is a factor that impacts on the productivity of human resources. Therefore, this research addresses this issue applied to a higher education institution in the public sector, considering that education is an elementary part of any society.

The theoretical framework is composed of the independent variable established as job satisfaction, delving into the different theories proposed by some authors to measure it through various indicators and the dependent variable represented by the higher education institutions (HEI) contextualising the object of study which in this case was the educational programme of electronic engineering belonging to the Tecnológico Nacional de México/Instituto Tecnológico de Toluca.

It also describes the problems detected, emphasising the classification of the academic staff and explains the method used to develop this work, citing and referencing the methodological elements implemented.

The data collection instrument designed on the basis of the Job Satisfaction Scale proposed by Warr, Cook and Wall and adapted to Spanish by Pérez Bilbao and Fidalgo Vega through the NTP394 standard issued by the National Institute for Safety and Hygiene at Work belonging to the Ministry of Labour and Social Affairs of Spain is shown. The information obtained is then tabulated and the results are presented in the form of graphs.

Finally, the conclusions obtained regarding the comparison between basic and honorary staff in terms of the perception of intrinsic and extrinsic factors of job satisfaction are mentioned.

Frame of reference

Theories have been developed that explain motivation as a fundamental element of job satisfaction; among them we have Abraham Maslow's hierarchy of needs theory which refers to five levels: physiological, security, love or social, esteem and self-fulfilment. McClelland's theory of needs identified three needs: achievement, power and affiliation.

As for Skinner's operant theory, a "positive reinforcer" is required to achieve a desired response which leads to a positive consequence in the work environment and tends to be repeated.

Another theory is Vroom's model, which is based on expectancy and defines it as the degree to which a person thinks that a specific action will lead to a particular outcome. It states that there are two types of expectancy, "effort-performance" and "performance-outcome". The first is for a person to believe that increased effort will actually lead to increased performance. The second is believing that a certain performance will lead to a particular outcome. The author states that work motivation is a multiplicative function of employees' expectations of future outcomes times the personal value they place on these outcomes.

The Porter-Lawler expectancy model determines that an employee's individual effort depends on the value of the expected reward and the perception of the effort involved in performing and obtaining the reward.

One of the most widely used theories is the motivation-hygiene theory of F. Herzberg. The author's study was to classify various needs of people into two groups: hygiene factors or dissatisfiers and motivational factors or satisfiers. He states that hygiene factors are dissatisfiers because if they are present at work, people will not be dissatisfied; therefore their presence does not really motivate workers. However, by removing any of these, extreme dissatisfaction can occur. With regard to motivational factors, these are the aspects of the task or the job itself. They are comprised of challenge, opportunity for personal advancement and performance feedback. These factors are of great value for employee satisfaction and have a positive effect on performance.

Herzberg's theory is linked to the concepts of "content" and "context" of the job. The former relates to the job, since motivational factors arise from the work-worker relationship, they are included in the job content. The term "intrinsic" is commonly used because these factors pertain to the job itself and to the employees. As for the job context brings together hygiene factors; they are determined as "extrinsic" because the job context or hygiene factors are outside the job and the employee.

(Terry & Franklin, 2017) Motivational or intrinsic factors have more relative importance because it is more desirable to have motivating factors; but motivating factors are never completely satisfactory unless the hygiene or extrinsic factors are reasonably satisfactory and effective. The two are closely related in most work situations.

There are different conceptualisations regarding the elements that comprise job satisfaction, so it is necessary to approach various scholars on the subject to determine the ideal methodology to apply in the definition and measurement of the aspects that represent it in any entity.

(Chiavenato, 2019) highlights the concept of organisational effectiveness, which should be directed at "intangible assets" and not measured only with accounting or financial indicators. To achieve it, three conditions must be met: achievement of organisational objectives, maintenance of the internal system and adaptation to the external system. He concludes by stating that "effectiveness means the satisfaction of the organisation's stakeholders". And these are: shareholders, managers, employees, suppliers, creditors, consumers, government and community. Based on this proposition, he determines that the indicators that should be used to measure organisational effectiveness are: production, efficiency, satisfaction, which are short-term; adaptability and development, which are medium-term; and survival, which is long-term.

This author defines satisfaction as "meeting the demands of the environment through social responsibility, ethics, voluntarism, etc.". Satisfaction indicators include staff attitudes, turnover, absenteeism, complaints, grievances, etc.". And he concludes that all the indicators mentioned depend on the human factor of the organisation.

(Werther, Davis, & Guzmán Brito, 2014) establish as indicators to evaluate job satisfaction the professional performance, management, organisation and function, tasks and activities, working hours, company and social environment and work climate. From their perspective, "A better work climate translates into higher levels of job satisfaction".

(Pedraza Melo, 2020) specifies that job satisfaction represents an emotional state, product of the appreciation that employees form about how much their jobs and the organisations where they provide their services provide them with stimuli that meet their needs and expectations in exchange for what they contribute to the organisation.

(Naumov Garcia, 2018) comments that one of the key functions of "total human capital management" is the administration and management of key people, which consists of retaining key people because they see their potential and future in the organisation. Therefore, management consists in carrying out the planning, organisation and control of human talent. This involves designing "the planned development and ensuring the satisfaction of key people, based on their results". The elements considered are: promoting key people to the positions established in the development plan; giving them higher compensation; investing in training programmes according to the needs of the company; maintaining a minimum number of key people in the programme (which will depend on the number of personnel and size of the company); integrating key people in identifying new talents and participating in their development; and communicating to all the company's personnel that this type of programme is in place so that people are motivated to participate in it.

(Escobedo Portillo, Cuautle Gutiérrez, Maynez Guadarrama, & Estebané Ortega, 2014) in their study "Escala de Satisfacción Laboral a partir de Factores Socioculturales y Ergoambientales para los Docentes de las Instituciones de Educación Superior en México" define that job satisfaction (LS) is the feeling of the individual in their workplace, but this does not just happen. The LS has several methods and instruments that help the company and the individual to know the degree (positive or negative) of LS in which they find themselves. Thus it is possible to determine how employees achieve their goals, as well as the conditions and factors that influence their achievements.

In their research, they considered the Sociocultural Factors (SCF) made up of: relationship with colleagues, boss supervision, working conditions, freedom of action, gender, age, religion, place of birth, marital status, origin, economic dependents, length of service, last degree of studies, current studies, school of origin, graduate of the same institution, years of professional experience. And the Ergoenvironmental Factors (EEF) constituted by noise, lighting and temperature. They also used the "General Satisfaction Scale" from Warr, Cook and Wall.

One point of view to consider is that of (Cavalcante Silva, 2004) who states that "Although, since the 1930s, interest and research into job satisfaction has increased rapidly, the understanding of its causes is far from being unquestionably clarified and systematised" and goes on to comment "Today, we are trying to understand whether the determinants of job satisfaction are the same as those that determine it, Today, we are trying to understand whether the determinants lie in the nature of the work itself, in the variables inherent to the professional, or whether, on the other hand, it is the result of the interactions established between the active citizen (respective life history and personality) and the specificities of the context of his or her work". Thus, within the infinity of existing methodologies, the factors or indicators to be analysed are as diverse as the aspects to be measured. After examining some of the aforementioned methods, it was decided to apply, for this research, the "Overall Job Satisfaction Scale" belonging to Warr, Cook and Wall developed in 1979.

(Pérez Bilbao & Fidalgo Vega, 1993) made a Spanish translation of Warr, Cook and Wall's research, and translated it into the NTP394 standard issued by the National Institute of Safety and Hygiene at Work belonging to the Spanish Ministry of Labour and Social Affairs. The characteristics of this scale are as follows: it operationalises the construct of job satisfaction, reflecting workers' experience of paid employment; and it captures the affective response to the content of the job itself.

The scale was created after detecting the need for short and robust items that could be easily completed by all types of workers regardless of their background. Based on the existing literature, a pilot study and two research studies with manufacturing workers in the UK, the final fifteen-item scale was developed. The scale is in line with those who establish a dichotomy of factors and is designed to address both intrinsic and extrinsic aspects of working conditions. As determined by Frederick Herzberg

It consists of two subscales, the first, the intrinsic factors subscale, addresses aspects such as: freedom to choose one's own method of work, recognition obtained for work well done, responsibility assigned, the possibility of using one's own abilities, possibilities for promotion, attention paid to suggestions made, and the variety of tasks performed at work. This scale consists of seven items (numbers 2, 4, 6, 8, 10, 12 and 14).

And the second, extrinsic factors subscale: physical working conditions, co-workers, immediate superior, salary, management-worker relations in the company, the way the company is managed, working hours and job stability. This is made up of eight items (numbers 1, 3, 5, 7, 9, 11, 13 and 15).

Figures 1 and 2 below show the relationship that Pérez Bilbao and Fidalgo Vega (1993) make between Herzberg's theory and the general satisfaction scale of Warr, Cook and Wall:

MOTIVATIONAL FACTORS		
SATISFYING	Factors that when they go well produce satisfaction.	Factors that when they go wrong do not produce dissatisfaction.
	Successful completion of work	Lack of responsibility.
	Recognition of the success obtained by managers and co-workers. Company promotions, etc.	Routine, boring work, etc.

Figure 1 Motivating factors
Source: Pérez, Fidalgo (1993)

HYGIENIC FACTORS	
DISSATISFYING	Factors that when they go well do not produce satisfaction
	Factors that when they go wrong produce dissatisfaction
	<ul style="list-style-type: none"> - Bad interpersonal relationships. - Low salary. - Bad work conditions, etc.

Figure 2 Hygienic factors
Source: Pérez, Fidalgo (1993)

One of the pillars of a country's development is education, hence the importance that every HEI must have, among other resources, an academic staff that meets the requirements established in the job profiles described in the organisational manual. But this is not enough; it is also necessary that teachers are motivated to carry out their work, that they are really satisfied, as this will result in the training of professionals who have the competences established in the graduate profile. In this sense, on joining an educational institution, teachers seek, on the one hand, to identify with its mission, vision, values and objectives and, on the other, to feel motivated to carry out their work efficiently, which translates into job satisfaction. Therefore, it is necessary to determine the aspects or elements that, by having them, the worker will feel satisfied.

This research focuses on higher education and according to the National Association of Universities and Institutions of Higher Education (ANUIES, 2023) in the state of Mexico during the school year 2021-2022 there was an enrolment of 548, 756, of which 296, 364 were women and 252, 392 men. They were enrolled in public and private HEIs. Based on the statistics presented by the Ministry of Public Education (SEP, 2023) in the document called "Main Figures of the National Education System" during the period 2021-2022 there were a total of 5,847 higher education institutions, with 2,379 belonging to the public sector and the rest to the private sector. Of this total, 133 were Federal Technological Institutes, with an undergraduate enrolment of 344,104 students.

The setting where the study was applied is the Instituto Tecnológico de Toluca (ITTol, 2023), belonging to the Tecnológico Nacional de México, which houses, among others, the Federal Technological Institutes. ITTol is currently located in the municipality of Metepec, State of Mexico, and offers nine engineering courses: Electromechanics, Electronics, Business Management, Industrial, Logistics, Mechatronics, Chemistry, Computer Systems and Information and Communication Technologies. The enrolment in the period August-December 2022 was 5,955 students and an academic staff of 239 teachers.

About the Electronics Engineering degree, which is the subject of study, 327 students were enrolled in the same period mentioned in the previous paragraph. Currently, there are 15 basic teachers, and due to the fact that it is not possible to meet the academic demands of the area, there is a need to hire personnel from outside the institution under the fee contracting modality; in the case of this department, there are 7 teachers in this modality.

With regard to the type of contracting, basic personnel are understood as those who hold a position with the category of subject lecturer or career lecturer. The definitions established in the Internal Working Regulations of the Teaching Staff of the Technological Institutes are as follows:

"Article 13. Subject teachers are those whose appointment(s) fluctuate(s) between 1 and 19 hours per week and are engaged in teaching in accordance with the limits established in these Internal Regulations.

Career teachers are those who, having met the specific requirements set out in these Internal Regulations, hold appointments of 20 to 40 hours per week, and receive remuneration in accordance with the category and level they have reached; they are engaged in teaching in accordance with the limits established in these Internal Regulations and other functions set out in Article 27 of these Internal Regulations".

As for the fee contract, it is a personnel that generates an employment relationship with the Instituto Tecnológico de Toluca for a determined time and hourly load; therefore, the benefits are not the same between the base and the latter.

Hence the relevance of carrying out a comparison of the level of satisfaction between these two types of recruitment.

Problem statement

The job satisfaction of human capital has always been a very important factor, both for public and private companies, because it is thanks to their personnel that they are able to achieve the goals and objectives proposed by these companies.

The job satisfaction of those who are in the day after day in the pursuit of these goals is one of the most important issues for officials and managers of companies, and is also one of the main problems within your organization, since the lack of employee motivation, When it is not sufficient or lacks stimulating incentives, it increases, first the poorly done work, and then the abandonment of the source of work, causing a high turnover of staff, which hinders the achievement of objectives and the smooth functioning and harmony of the companies.

For this reason, a harmonious and satisfactory working environment is recognised by managers and entrepreneurs as one of the main factors for a correct functioning and to be able to achieve the productivity goals proposed in the exercise of their business environment.

Satisfied and committed employees are a valuable capital for any company and knowing the state of their satisfaction is the first step to identify and generate proposals to improve or maintain job satisfaction in each employee in particular, and in the company in general terms.

Due to the aforementioned, the Electronics Engineering course at the Tecnológico Nacional de México/Instituto Tecnológico de Toluca has seen the need to carry out an investigation of the job satisfaction of its staff in order to improve the working environment and the permanence of its employees, allowing an increase in productivity and the good functioning of the organisation.

Methodology

The method used in this research has a quantitative approach with a descriptive type of study using the descriptive cross-sectional design.

Based on the stipulations of (Hernández Sampieri, Fernández Collado, & Baptista Lucio, 2010), the descriptive type of study is one that seeks to specify the properties, characteristics and profiles of individuals, groups, communities or any other phenomenon that is subjected to analysis.

In turn, descriptive cross-sectional designs aim to investigate the incidence of the modalities or levels of one or more variables in a population, which provides us with a more objective view of the same. The procedure consists of locating one or several variables in a group of people, living beings, objects, situations, contexts, phenomena, communities, etc. and providing their description (Hernández, Fernández and Baptista, op. cit).

The research was carried out in two phases: in the first phase, documentary research was carried out, in this part we proceeded to analyse the general and specific concepts of different authors in order to unify concepts and definitions, in addition to analysing the information available from previous studies, as well as the methodologies used and the validation of these.

In the second stage, field research was carried out: the study population was defined as the teachers of the Electronic Engineering course at the Tecnológico Nacional de México/Instituto Tecnológico de Toluca.

The General Satisfaction instrument by War, Cook and Wall, translated into Spanish and adapted by Pérez-Bilbao and Fidalgo, called the General Satisfaction Scale NTP 394, which measures two dimensions: intrinsic and extrinsic satisfaction, based on Herzberg's theory of hygienic factors, was used as a basis.

This scale operationalises the construct of job satisfaction, reflecting the experience of workers in paid employment, and captures the affective response to the content of the job itself. It is worth mentioning that the extrinsic factors include "Contracting conditions", since the aim of this study is to compare the job satisfaction of the staff who have a base and the staff who are hired on a fee contract (temporary contract); on the other hand, "the attention paid to the suggestions you make" was omitted, since the Institution has ISO 9001:2015 Certification and its Quality Management System includes attention to the complaints and suggestions of the technological community and it is through this means that they are given prompt attention. The instrument used to collect the information was the questionnaire consisting of the 15 questions described in table 1, these allow us to evaluate the intrinsic and extrinsic factors and thus determine job satisfaction.

In this study, a 5-level scale was used, 1 for very dissatisfied, 2 for satisfied, 3 for neutral, 4 for satisfied and 5 for very satisfied. Once the questionnaire was developed, it was subjected to a proof of concept and comments were taken into account for its subsequent implementation. The questionnaire was applied using Forms.

INTRINSIC FACTORS	
DEFINITION	FACTOR
Motivation factors that generate satisfaction.	I. 1. Freedom to choose your own working method. I.2. Recognition you get for a job well done. I.3 Responsibility assigned to you. I.4. The possibility of using your abilities. I.5. Ease of being promoted. I.6. The variety of tasks you perform in your job.
EXTRINSIC FACTORS	
DEFINITION	FACTOR
Unsatisfactory factors which include the work environment causing dissatisfaction.	E.1. Physical conditions of work. E.2. Relationship with coworkers. E.3. Relationship with your immediate superior. E.4. Your salary. E.5. Contract conditions. E.6. Relationship between management and workers of the institution. E.7. The way your company is managed. E.8. Your work schedule. E.9. Your job stability.

Table 1 Definition of intrinsic and extrinsic factors
 Source: Own elaboration

Sample Size

The study population is made up of a total of 22 teachers, 15 of whom are permanent and 7 are on honorary contracts.

It was decided to apply to all the staff and not to leave out the opinion of any teacher, to avoid them feeling excluded and considering that their opinion is not important. For this reason, a census was carried out, which consists of gathering statistical data on the entire population under study, so that the factors influencing work motivation can be known precisely.

A census implies that no hypothesis testing is performed as there is no sampling error. Inferences are drawn directly from the results obtained.

Descriptive analysis

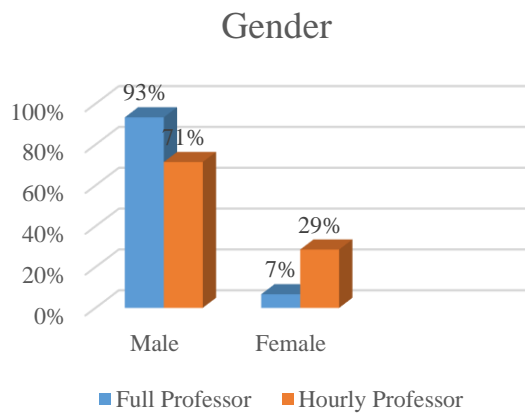
A descriptive analysis was carried out based on measures of central tendency (means) and dispersion (standard deviation) of the factors and sub-populations in order to find significant differences between them.

On the other hand, a correlation analysis of the factors (variables) of each of the subpopulations was carried out in order to detect the factors that show significant correlations. The aim of this last step is to identify the factors with a high degree of correlation so that in subsequent studies some of them can be eliminated to simplify the modelling.

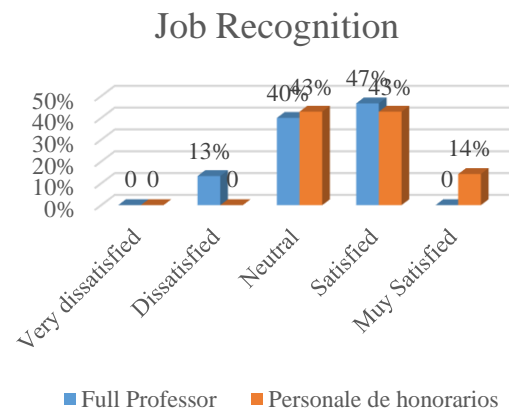
Results

The results obtained from the application of the instrument used are presented below.

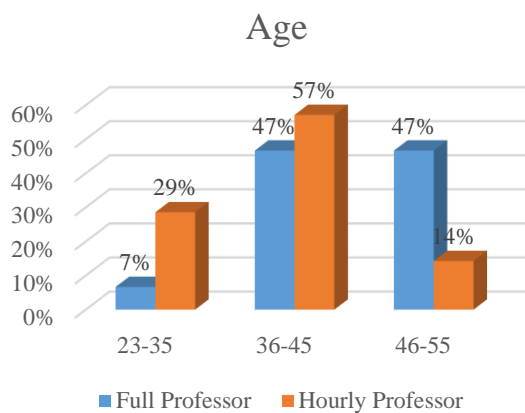
Graphics 1 and 2 correspond to the gender and age group of the teachers of the Electronic Engineering educational programme.



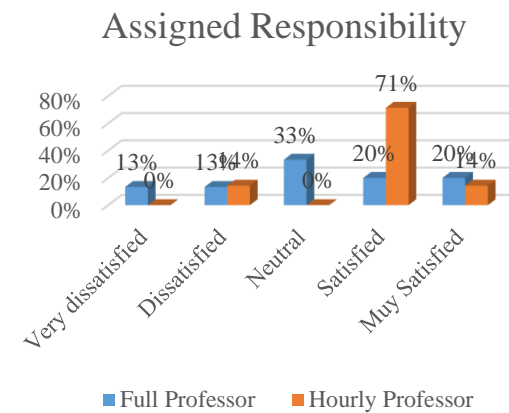
Graphic 1 Gender of teaching staff
Source: Own elaboration



Graphic 4 Recognition for a job well done
Source: Own elaboration

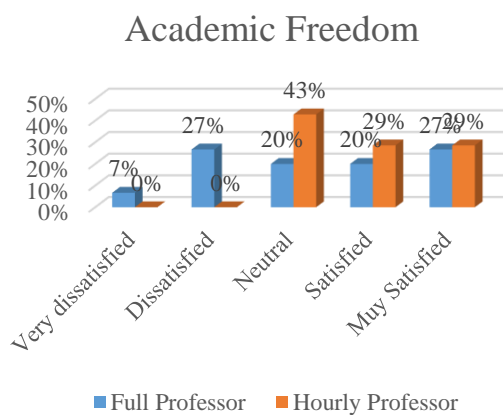


Graphic 2 Age of teaching staff
Source: Own elaboration

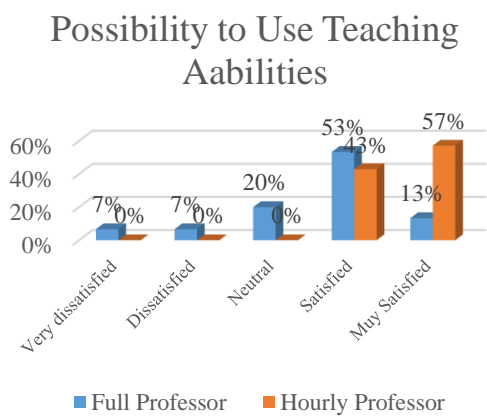


Graphic 5 Assigned responsibilities
Source: Own elaboration

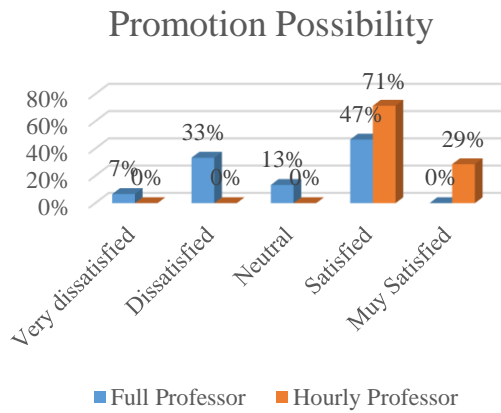
Graphic 3 to 8 correspond to intrinsic factors.



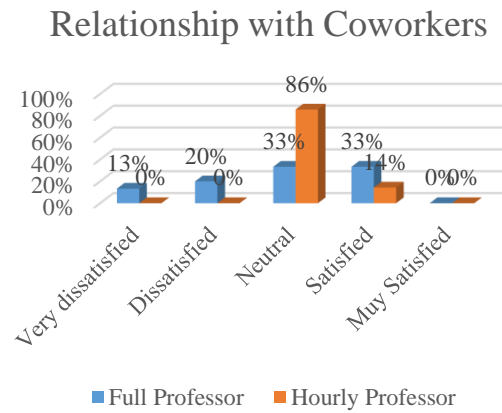
Graphic 3 Freedom to choose the teaching methodology
Source: Own elaboration



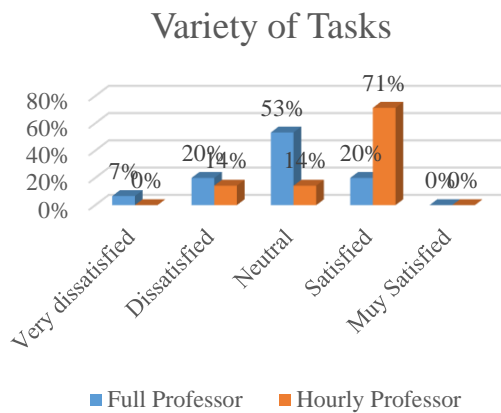
Graphic 6 Opportunity to apply teaching abilities
Source: Own elaboration



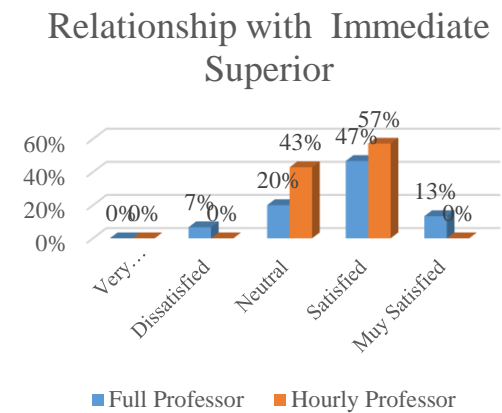
Graphic 7 Promotion Opportunities
Source: Own elaboration



Graphic 10 Relationship with coworkers
Source: Own elaboration

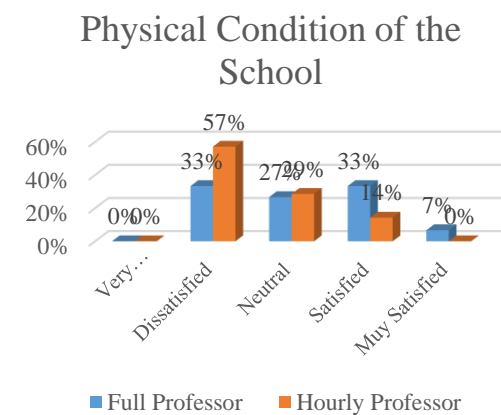


Graphic 8 Variety of tasks to undertake
Source: Own elaboration

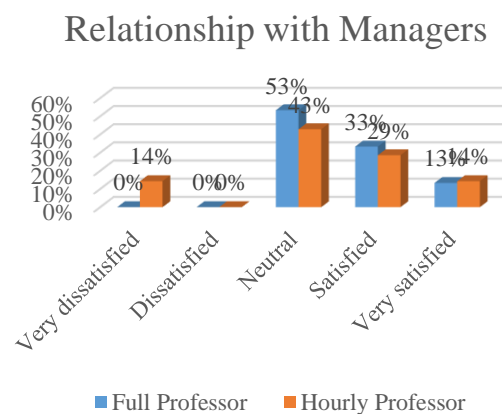


Graphic 11 Relationship with immediate superior
Source: Own elaboration

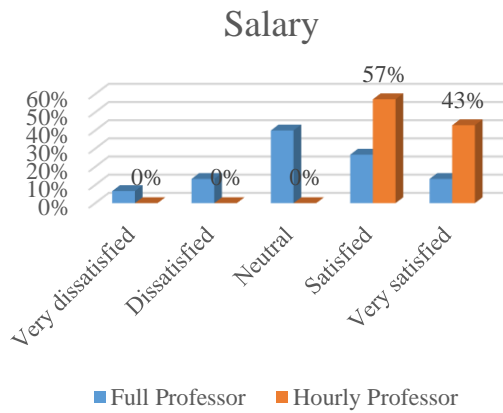
Graphics 9 to 18 show the results of the evaluation of extrinsic factors.



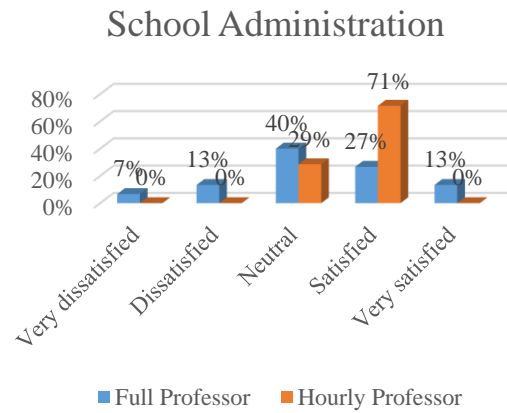
Graphic 9 Physical conditions of the workplace
Source: Own elaboration



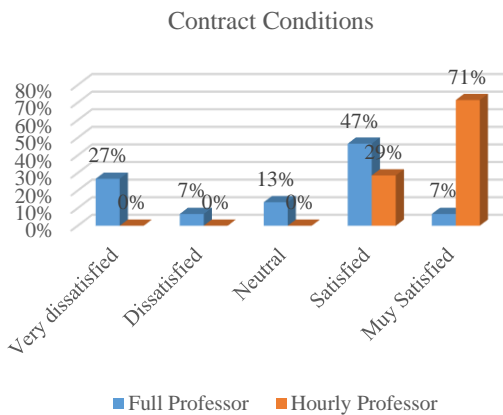
Graphic 12 Relationship with managers
Source: Own elaboration



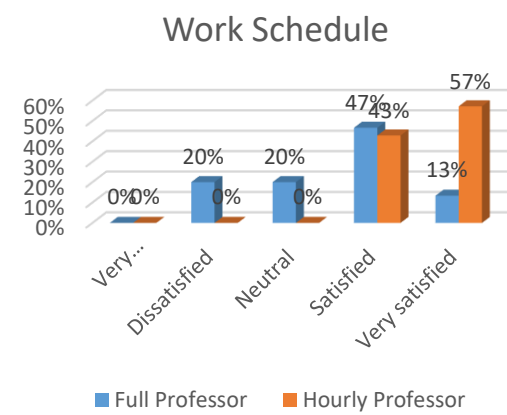
Graphic 13 Salary adequacy
Source: Own elaboration



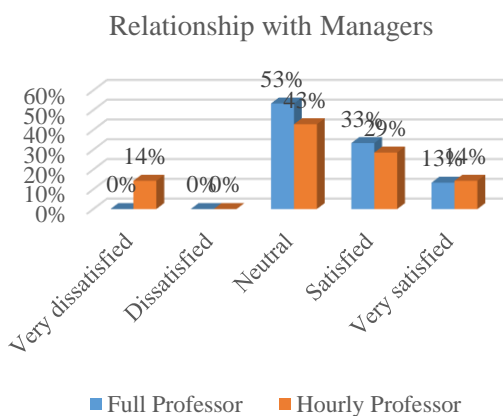
Graphic 16 Managerial work
Source: Own elaboration



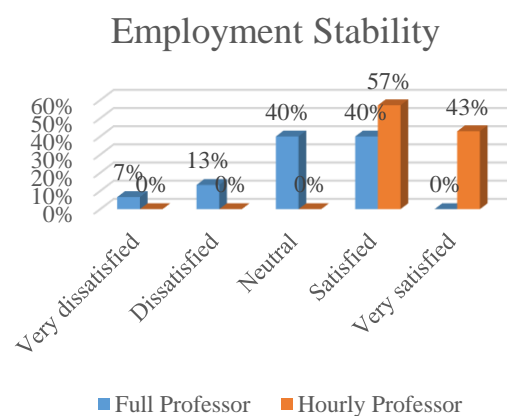
Graphic 14 Conditions of contract
Source: Own elaboration



Graphic 17 Suitable work schedules
Source: Own elaboration



Graphic 15 Relationship between the school administrators and the professors
Source: Own elaboration



Graphic 18 Stability at work
Source: Own elaboration

The following tables 2, 3, 4, and 5 show the job satisfaction of the basic and honorary teachers.

Intrinsic variables	1. Freedom to choose the working method						2. Recognition		3. Assigned responsibility		4. Possibility of using your abilities		5. Promotion		6. Variety of tasks to perform		Total	%
Very unsatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dissatisfied	0	0	1	0	0	1	2										2	5%
Neutral	3	0	2	0	3	2	10										10	24%
Satisfied	2	5	4	3	2	4	20										20	47%
Very satisfied	2	2	0	4	2	0	10										10	24%
Total	7	7	7	7	7	7	42										42	100%

Table 2 Intrinsic satisfaction of fee teachers
Source: Own elaboration.

In terms of intrinsic satisfaction, fee-paying teachers show a positive attitude with a level of 47% Satisfied and 24% Very Satisfied.

It should be noted that the variable, Recognition with 71% at the Satisfied level and 29% at the Very Satisfied level.

Intrinsic variables	1. Freedom to choose the working method		2. Recognition		3. Assigned responsibility		4. Possibility of using your abilities		5. Promotion		6. Variety of tasks to perform		Total	%
Very unsatisfied	1	0	0	1	1	0	3						3	3%
Dissatisfied	4	0	2	1	4	3	13						13	15%
Neutral	3	7	7	2	3	7	30						30	33%
Satisfied	3	6	4	7	3	4	27						27	30%
Very satisfied	4	2	2	4	4	1	17						17	19%
Total	15	15	15	15	15	15	90						90	100%

Table 3 Intrinsic satisfaction of basic teachers
Source: Own elaboration

As far as intrinsic satisfaction is concerned, the basic teachers show a mainly neutral attitude with 33%; Satisfied with 30% and Very Satisfied with 19%. Therefore, it can be seen that the basic teachers have a slightly positive attitude with 49% at the level of Satisfied to Very Satisfied in terms of extrinsic satisfaction.

Extrinsic variables	1. Physical working conditions		2. Co-workers		3. Relationship with your boss		4. Salary		5. Contract conditions		6. Relationship with your boss		7. Management of the company		8. Working hours		9. Employment stability		Total	%
Very unsatisfied	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dissatisfied	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3	5%
Neutral	3	4	3	3	3	3	3	2	2	0	3	4	2	2	0	3	24		24	38%
Satisfied	2	1	2	2	2	2	2	3	3	4	2	2	2	2	0	2	20		20	32%
Very satisfied	2	1	2	2	1	1	1	3	2	2	2	2	2	2	2	16		16	25%	
Total	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	63		63	100%	

Table 4 Extrinsic satisfaction of fee teachers
Source: Own elaboration

In terms of Extrinsic Satisfaction, fee-paying teachers have a mainly Neutral attitude with 38% but inclined towards Satisfied with 32% and 25% in Very Satisfied. In this case we can say that fee-paying teachers in terms of extrinsic satisfaction have a favourable attitude with a percentage of 57% at a level from Satisfied to Very Satisfied.

Extrinsic variables	1. Physical working conditions		2. Co-workers		3. Relationship with your boss		4. Salary		5. Contract conditions		6. Relationship with your boss		7. Management of the company		8. Working hours		9. Employment stability		Total	%
Very unsatisfied	0	0	1	1	1					0	1	0	1	0	1	5		5	4%	
Dissatisfied	6	3	4	4	4					6	6	2	4	39				39	29%	
Neutral	4	7	3	3	3					4	6	2	3	35				35	25%	
Satisfied	4	4	3	3	3					4	1	7	3	32				32	24%	
Very satisfied	1	1	4	4	4					1	1	4	4	24				24	18%	
Total	15	15	15	15	15					15	15	15	15	135				135	100%	

Table 5 Extrinsic satisfaction of basic teachers
Source: Own elaboration

As for the Extrinsic Satisfaction of basic teachers, it shows a mainly negative attitude with 29% in the level of Dissatisfaction, followed by 25% in Neutrality, 24% in Satisfaction and 18% in Very Satisfied.

Tables 6 and 7 show the mean and standard deviation.

Factor	Level of Intrinsic Satisfaction					
	All professors		Full professors		Hourly professors	
	Mea	S	Mea	S	Mean	S
Freedom to choose working method	3.55	1.12	3.40	1.20	3.86	0.83
Recognition for a job well done	3.45	0.72	3.33	0.70	3.71	0.7
Assigned responsibility	3.5	1.03	3.33	1.07	3.86	0.83
Ability to use your capabilities	3.95	0.88	3.67	0.87	4.57	0.49
Ease of promotion	3.45	0.99	3.07	0.93	4.29	0.45
Variety of tasks to be performed	3.14	0.76	2.93	0.68	3.57	0.73
Total	3.50	0.96	3.47	0.96	3.98	0.77

Table 6 Level of intrinsic satisfaction*Source: Own elaboration*

Factors	Extrinsic Satisfaction Level					
	All professors		Full professors		Hourly professors	
	Media	S	Media	S	Media	S
Physical conditions of work.	2.95	0.93	3.13	0.96	2.57	0.73
Relationship with Coworkers.	3.05	0.71	3.00	0.82	3.14	0.35
Relationship with your immediate superior	3.55	0.84	3.53	0.96	3.57	0.49
Your salary	3.68	0.97	3.33	0.94	4.43	0.49
Contract conditions	3.73	1.09	3.27	1.00	4.71	0.45
Relations between managers and workers	3.55	0.78	3.6	0.71	3.43	0.68
The way your school is managed.	3.45	0.84	3.33	0.94	3.71	0.45
Working hours.	3.86	0.97	3.53	0.96	4.57	0.49
Your job stability.	3.59	0.89	3.20	0.75	4.43	0.49
Total	3.49	0.92	3.33	0.82	3.84	0.89

Table 7 Extrinsic level of satisfaction*Source: Own elaboration*

In table 8, the correlation analysis of all pairs of factors was performed and correlations greater than $|0.5|$ were identified, and then a regression analysis was performed to determine the significance of the correlation at the $\alpha = 0.05$ level. Table 8 shows the results of the analyses performed including the F-statistic and the p-value, where $r =$ correlation index; $FE = F$ calculated from the study; $FC =$ critical F and $S =$ Significance at a level of $\alpha = 0.05$.

	R	Factors	F_E	F_C	p-value	S
All professors	0.73	I4 vs E4	22.48	4.35	0.00012	Yes
	0.66	E1 vs E6	15.46	4.35	0.00082	Yes
Full professors	0.67	E1 vs E6	10.34	4.67	0.00676	Yes
	0.64	I2 vs E4	9.04	4.67	0.01010	Yes
	-0.60	I6 vs E1	7.36	4.67	0.01776	Yes
Hourly professors	0.84	I1 vs E9	12.14	6.61	0.01757	Yes
	0.80	E1 vs E2	8.93	6.61	0.03051	Yes
	0.71	E1 vs E6	5.18	6.61	0.07198	Yes
	-0.73	I4 vs I5	5.71	6.61	0.06235	Yes

Table 8 Relevant correlation indices and F-test*Source: Own elaboration.*

Conclusions

In terms of intrinsic satisfaction factors, the "Variety of tasks to perform" is rated as neutral by the core staff, which indicates that there is an area of opportunity to be taken into account. In terms of fee staff, the best rated factor is "Possibilities to use my skills" with a mean of 4.57 and a standard deviation of only 0.49, so we can consider that fee staff are very satisfied with the institution for allowing them to use their skills.

Comparing the data as a whole, it can be seen that all factors are only slightly above the overall mean of 3, which, in quantifiable terms, means that the intrinsic values are only slightly above neutral or indifferent.

From the data observed in the responses of the core staff, it can be seen that the majority (6 out of 7) have values above the overall average, which in this case is 3.

The factor that does not reach the overall average value is "variety in the tasks to be performed", with a very slight lower value (0.07), while the factor "possibility to use your skills" represents the highest value, exceeding the average with 0.67.

The dispersion in the responses is around the value of one, so it follows that the data are clustered in a normal distribution, with its graph in the shape of the classical bell of this distribution.

It is very significant that, when comparing the averages between regular and honorary staff, all the values given to each of the factors of the honorary staff are significantly higher than those given by the regular staff.

As for the extrinsic factors, the ratings given by the core staff are at the neutral level, while the fee personnel give "very satisfactory" ratings to the factors "Hiring conditions" and "Working hours", while the fee personnel give a rating between unsatisfactory and neutral to "Physical working conditions", it is important to note that this factor for the fee personnel was the only one that was rated below the "neutral" level, which represents an area of opportunity for improvement.

Contrary to expectations, fee-based staff are more satisfied than regular staff in these areas, despite the fact that the salary they receive is lower than that of regular staff and their schedules are assigned to cover subjects and schedules that were not covered by regular staff. One possible explanation for this assessment is that fee staff received a 50% salary increase in the current semester.

With regard to extrinsic factors, we observe that as a whole (core and honorary teachers), 7 of the 8 values are above the general average, with "Working conditions" being 5 tenths below this parameter. "Working hours" and "Job stability" stand out as the best evaluated factors.

When comparing the factor scores between fee and basic teachers, the higher evaluation of almost one point that fee teachers give to the indicators "Job stability" and "Salary" is worth analysing.

In an objective analysis of the comparison between both groups, 6 of the factors have a higher evaluation of the fee teachers and only "Physical working conditions" and "Relationship between management and workers" have a lower evaluation than the one given by the basic teachers.

Regarding the standard deviation, a significant difference is observed in all the factors, being the basic group the one that presents the greatest dispersion of the data, 6 of the standard deviation values, present values from 0.49 to 0.45. One of them ("Your department head"), presents an insignificant difference of three tenths and the last difference of 0.38.

For future studies and according to the results shown in table 8, it is advisable to eliminate from the analysis one factor from each pair of highly correlated factors such as I1 (Freedom to choose the method of work) and E9 (Job stability) which have a significant positive correlation of 0.84. Similarly, I4 or I5 can be eliminated since I4 (possibility to use my ability) and I5 (possibility of promotion) have a significant negative correlation of 0.73.

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Job satisfaction in a clothing manufacturing company**Satisfacción laboral en una empresa de confección de prendas de vestir**

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Abstract

Considering job satisfaction as one of the most important elements in business life, the objective of this research was to determine the level of satisfaction of the employees of a garment manufacturing company, in the production area. It is conceptualized with respect to the subject, two dimensions were determined for the realization of the study; the one dimension Extrinsic variables that considering the following indicators: company policies, supervision, relationship with supervision, working conditions, salary and interpersonal relationships; and two dimension intrinsic variables considering the following indicators: personal self-realization, professional recognition, work itself as a positive stimulus, responsibility, and opportunities for growth and promotion. A survey with the Likert scale was applied to a population of 26 collaborators from the production area. It was found in terms of extrinsic satisfaction, that 38% indicate feeling indifferent, 35% indicate being dissatisfied, likewise, 19% indicate being satisfied, 7% feel totally dissatisfied and finally, only 3% indicate be fully satisfied. Regarding intrinsic satisfaction, it indicates that 35% are indifferent; 31% say they were dissatisfied, 22% said they were satisfied, 8% said they were totally dissatisfied and 4% said they were totally satisfied.

Resumen

Considerándose a la satisfacción laboral como uno de los elementos más importantes dentro de la vida empresarial, el objetivo de la presente investigación fue determinar el nivel de satisfacción de los empleados de una empresa de confección de prendas de vestir, del área de producción. Se conceptualiza con respecto al tema, se determinaron dos dimensiones para la realización del estudio; la una dimensión de Variables extrínsecas que considerando los siguientes indicadores: Políticas de la empresa, la supervisión, la relación con la supervisión, las condiciones de trabajo, el salario y las relaciones interpersonales; y dos dimensión de variables intrínsecas considerando los siguientes indicadores: La autorrealización personal, el reconocimiento profesional, el trabajo en sí mismo como estímulo positivo, la responsabilidad y las oportunidades de crecimiento y ascenso. Se aplicó una encuesta con la escala de Likert a una población 26 colaboradores del área de producción. Se encontró en cuanto a la satisfacción extrínseca, que el 38% indica sentirse indiferente, un 35% señala estar insatisfecho, así mismo, el 19% indica estar satisfecho, un 7% se sienten totalmente insatisfecho y por último, solo un 3% señala estar Totalmente satisfecho. Con respecto a la satisfacción intrínseca, indica que el 35% se encuentra indiferente; un 31% manifiesta se encontrase insatisfecho, el 22% dijo estar satisfecho, el 8% señala estar totalmente Insatisfecho y el 4% reconoce estar Totalmente satisfecho.

Job satisfaction, Extrinsic and intrinsic variables**Satisfacción laboral, Variables extrínsecas e intrínsecas**

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Introduction

The purpose of this research is to determine the existing job satisfaction in a company that manufactures school and sports clothing, identifying the most influential variables.

There is consensus in considering that the staff represents the human capital of a company; knowing the real or felt needs that influence their job satisfaction is a priority that allows the execution of strategies aimed at offering workers (Garcia Ramos, Lújan López, & Martínez Corona, 2007).

Reference is made to Herzberg's theory analysing the Hygiene Factors, or Maintenance. They refer to the conditions that surround the employee while working, such as: Physical and environmental conditions in which the task is carried out, salary, company policies, management style. Relations between management and workers. Status, Safety. These physical and social factors can be used to avoid job dissatisfaction but not to motivate employees. Herzberg states that the factors that cause job satisfaction are related to the content of the job, the functions and tasks to be performed in it, referring to social and rather psychological motives. They produce a positive effect on motivation and an increase in productivity. These factors are: Performance and success, Recognition Responsibility, Development and growth. Challenging, challenging work.

Job satisfaction is one of the most important factors influencing people's job performance.

The employee behaves in a certain way, according to the degree of motivation he/she possesses. According to Robbins (2005), highly motivated people express their good performance through the effort they put into their activities. The importance of this research presented a series of perspectives: First, by leading to a diagnosis of job satisfaction in this company, it will contribute to objectively guide managerial action and organisational objectives; second, to contribute to workers' knowledge of the factors involved in their motivation and satisfaction process, so that they can improve their performance and productivity, together with the support that the company can provide in effective and efficient organisational work.

The approach of the methodology was conceived within the descriptive research, through the survey study (Hernández, Fernández, & Baptista, 2010). The data were obtained through an instrument, in which the level of satisfaction for each dimension was established through a Likert scale.

Frame of reference

There is no doubt that one of the factors that greatly influences the productivity of companies is job satisfaction, which in turn is related to motivation, to varying degrees.

One of the theories that have greatly influenced the development of the concept of "Job Satisfaction" is that proposed by Herzberg (Robinson & Cloutier, 2005), which proposes that job satisfaction and motivation are related to intrinsic factors while job dissatisfaction is related to extrinsic factors Herzberg believed that individuals' attitudes towards work determine success or failure, so he investigated the question "What do people want in their jobs? He asked people to provide a detailed description of situations in which they felt exceptionally good or bad about their jobs. Herzberg concluded in his analysis that the answers people gave when they felt good about their jobs differed significantly from the answers they gave when they felt bad. Some characteristics were systematically related to job satisfaction and others to job dissatisfaction the factors related to job satisfaction were intrinsic and included characteristics such as achievement recognition responsibility work itself progress. When people felt good about their jobs, they tended to attribute these characteristics to themselves. On the other hand, when they felt dissatisfied they tended to cite extrinsic factors such as supervision, company policies, relationship with supervisor, working conditions, salary, relationships with colleagues, personal life, relationship with subordinates, security status. According to Herzberg the factors that generate job satisfaction were independent and distinct from those that generate job dissatisfaction, therefore managers trying to eliminate factors that generated job dissatisfaction could believe in creating harmony in the workplace, but not necessarily job satisfaction.

Also, Robbins, cited by (Casquino Tristan Marilyn, 2020) refers to 7 factors in job satisfaction:

Physical and/or Material Conditions refers to the workspace considering ventilation, lighting, noise, hygiene, temperature and availability of the physical space.

Job Benefits and/or Remuneration: For a worker to feel satisfied in his job, it is essential that he receives a fair salary that meets his expectations and that he receives all the legal benefits that allow him to feel secure for himself and his family (Robbins, 2009).

Administrative policies: This is the agreement on the guidelines or institutional norms aimed at regulating the employment relationship. Workers will feel satisfied when the administrative policies of the organisation are aimed at providing workers with all the necessary conditions for adequate performance (Robbins, 2009).

Social Relations: When in an organisation there are bad interpersonal relationships generating quarrels, professional jealousy, envy, workers will not feel satisfied within the organisation and therefore will not be competitive (Robbins, 2009).

Personal Development: The organisation that does not provide opportunities for growth and professional development will not have satisfied employees, which will lead to them tending to leave the organisation quickly (Robbins, 2009).

Task Performance: To the extent that a worker feels that he has adequately performed his duties with the appropriate level of autonomy and that he has developed his work with responsibility, he will feel satisfied (Robbins, 2009).

Relationship with Authority: When the authority provides trust, delegates functions and trusts its workers, they will have a better performance and therefore their satisfaction will be optimal (Robbins, 2009).

(Morillo Mronta, 2006) mentions Sikula (1992), quotes Larouche and Delorme who define job satisfaction as "an affective resultant of the worker in view of the work roles that he/she holds, the final resultant of the dynamic interaction of two sets of coordinates called human needs and employee incentives".

Andresen, Domsch and Cascorbi cited by (Gamboa Ruiz, 2010), define job satisfaction as: "a pleasurable or positive emotional state resulting from the work experience itself; such a state is achieved by satisfying certain individual requirements through one's work".

In this respect, (Robinson & Cloutier, 2005), point out that "Job satisfaction designates the individual's general attitude towards his or her work".

For (Koontz, Heinz, & Cannice, 2012), he postulated as part of his theory, two groups or classes of job aspects: a group of extrinsic or hygienic factors, which prevent job dissatisfaction when they are optimal; and another, of intrinsic or motivating factors that determine or generate satisfaction. Both can affect the worker's skills and abilities.

They mention (Koontz, Heinz, & Cannice, 2012) that, among the intrinsic factors, referring to the content, task and duties related to the position and that produce a lasting effect of satisfaction and increased productivity, are: possibilities for advancement and growth, autonomy, the work itself, achievement, recognition and responsibility.

(Bastardo, 2014), in his article "Job Satisfaction of the Administrative Staff of the National Experimental University of Guayana, Venezuela" aimed to find out the level of job satisfaction of the administrative staff of the University, located in the State of Bolivar, Venezuela. Based mainly on the contributions of Robbins (1994; 1995; 1995; 1998; 1999; 2004), the following determinants of job satisfaction were studied: compatibility between personality and job; job challenge; working conditions; support from colleagues; and the system of rewards and benefits at work, from which a 46-item instrument was designed. The research was descriptive and field-based; the sample consisted of 112 subjects, to whom the instrument was applied in June 2013.

The conclusion was reached that, in general, the administrative staff of this university institution are satisfied with their jobs, and also from this perspective, satisfaction can be seen with respect to 80% of the dimensions of job satisfaction addressed in this study, i.e. the administrative staff feel satisfied with: Compatibility between personality and job; the challenge of the job; the support of colleagues and the system of rewards and job benefits, which registered averages above 3.40. Only the Working Conditions factor recorded a medium level of satisfaction, with a mean of 3.22.

(Morillo Mronta, 2006), in his article "Level of satisfaction of the academic staff of the Instituto Pedagógico de Miranda José Manuel Siso Martínez, in relation to the leadership style of the head of the department, the interpersonal relations of the assigned members and the institutional incentive system". This research was aimed at determining the level of satisfaction of the academic staff with the leadership style of the head of the department, interpersonal relations and the institutional incentive system. The method was conceived as Descriptive Research through a survey study. The results revealed that: a) The variables selected have an impact on the level of staff satisfaction. b) Two departments show a high level of satisfaction with regard to leadership style and interpersonal relations, while the other has a low level of satisfaction and dissatisfaction. c) Two departments showed dissatisfaction with regard to the institutional incentive system, as it is not in line with their expectations. d) Financial retributions are satisfactory only when they are granted, after which dissatisfaction continues. This diagnosis allows the management, as well as the departments, to be guided by positively promoting satisfaction, thus increasing performance and productivity.

(Casquino Tristán Marilyn, 2020) In her work entitled "Motivation and Job Satisfaction of the collaborators of a bodywork manufacturing company located in the district of Callao, Year 2020", the aim is to identify the correlation that exists between the motivation and job satisfaction of the collaborators; it is of a descriptive correlational type, the sample was made up of the total of the collaborators who were 47, therefore it is a census type sampling as the total population was used.

The information was collected through two questionnaires: one to measure motivation and another questionnaire to measure the job satisfaction of the employees. The results showed that there is a significant correlation between the motivation and job satisfaction of the employees of a car body manufacturing company located in the province of the province of Oviedo ($r = 0,377$, $P = 0,009$). A significant relationship was also found between the dimensions task autonomy ($r = 0.380$, $P=0.009$) and task variety ($r = 0.417$, $P=0.004$). Finally, there are some dimensions that have no significant correlation: task identity ($r = 0.127$, $P=0.394$), task importance ($r = 0.044$, $P=0.769$) and performance feedback ($r = 0.192$, $P=0.196$). Therefore, it concludes that the better the employee's perceived motivation, the higher his or her job satisfaction will be.

(Talavera-Salas, Calcina Cuevas, Castillo Machaca, & Campos García, 2021) In their research entitled "Motivation and job satisfaction of the workers of a Provincial Municipality of Puno, Peru", they mention that the objective of the research was to determine the relationship between the role of motivation in the job satisfaction of the workers of the Provincial Municipality of Puno. The study method was descriptive, cross-sectional, carried out on 76 workers, who responded to the Frederick Herzberg questionnaire of 34 items ($\alpha=0.801$), and to the Job Satisfaction Scale SL-ARG of 43 items ($\alpha=0.898$). We found that employees are moderately motivated (98.7%), in its extrinsic dimension (hygienic) the highest proportion is moderately motivated (75.0%), likewise in the intrinsic dimension (motivational) workers are moderately motivated (93.4%). The employees show regular job satisfaction (38.2%). It is concluded that there is a weak positive correlation between employee motivation and job satisfaction.

(Moreno Charris, 2017) in his research work aimed to propose job satisfaction strategies for exporting SMEs in the Textile-Clothing sector in Barranquilla-Colombia. To achieve this, a research was developed based on the quantitative paradigm, with a non-experimental transectional design. The sample consisted of employees of the 19 exporting SMEs in the textile-garment sector in Barranquilla, Colombia; the data were analysed using measures of central tendency.

The results indicate that there are high levels of satisfaction in the SMEs under study, as well as the presence of human resource-oriented strategies that promote high levels of job satisfaction. The traits found in this study were used as input to build strategies for job satisfaction among employees.

(Moreno Charris, Chang Muñoz, & Romero de Cuba, 2018). The objective of their work is to analyse the satisfaction of employees of exporting SMEs in the textile-garment sector in Barranquilla, Colombia. The theoretical perspective was oriented fundamentally considering the contributions made by Robin and Judge (2009). In this sense, research was carried out based on the quantitative paradigm, with a non-experimental, cross-sectional design, for which a census was carried out of the 19 exporting SMEs in the sector. The data were processed using measures of central tendency, showing that the indicators below the established average correspond to the variety of work, recognition of performance, security, stability, opportunities and relationship with colleagues; while the indicators referring to salary, structure and labour flexibility reached the highest levels of satisfaction. It is concluded that the globalising effects in this sector require Colombian companies to define strategies aimed at boosting satisfaction in the attributes of employment, given that human resources are their most important factor of competitiveness.

(Alvarez Santos, de Miguel Guzmán,, Noda Hernández, Alvarez López, & Galcerán Chacón, 2016) in their article "Diagnosis of job satisfaction in a hospital care entity" aimed to: Diagnose job satisfaction in a hospital care entity. Methods: Quasi-experimental study. The sample consisted of 301 workers who are directly linked to the health care services in the hospital. A methodology was used, which integrated the use of a survey to diagnose job satisfaction, direct observation and individual and group interviews to study the results in depth. The study included analysis by services and occupational categories. Results: The job satisfaction index resulting from the diagnosis was 74.39 %; working conditions and moral and material stimulation were the dimensions that most influenced this result. In the evaluation by services, only 14 acquired the desired values, and the category of nurses was the most affected.

The hospital care institution shows not very favourable levels of job satisfaction. From the analysis of the causes that generate the levels of dissatisfaction in the workers, a strategy for the progressive improvement of the organisation was derived.

Object of study

Family textile company founded in 1991, informally, legally constituted since 2001. Company dedicated to the sale and distribution of sportswear for schools and casual use.

Its main customers are distributors of pants in schools, traditional and made-to-order sales, the top management is made up of family members, parents and children.

Mission

To satisfy the needs of parents and schools; offering quality in our products. In addition to having a system of novelty in design and high technology.

Vision

To provide high quality products for the practice of sport at both professional and recreational level, offering solutions for the different needs, using a technological platform that simplifies and facilitates the processes of the different areas, committed to supporting the mental and physical health of our public.

Main objective

The aim of the brand is to offer these garments in the highest quality so that our customers can practise their favourite sport with the maximum possible comfort in order to improve their experience when practising.

Quality policy

The company is committed to implement, maintain and improve quality in all its processes, aimed at customer satisfaction, to meet the requirements of their needs, through a Quality Management System, in compliance with ISO 9001:2015.

Problem statement

Job satisfaction is a variable that influences the well-being and performance of workers, as well as the achievement of the objectives and competitiveness of organisations. However, there are several factors that can positively or negatively affect job satisfaction, such as working conditions, organisational climate, leadership style, motivation, commitment, personality and workers' expectations. These factors may vary according to the type of organisation, economic sector, hierarchical level and socio-cultural context. In this sense, the following research question is posed: What are the main factors that determine the job satisfaction of workers in a garment manufacturing company? The general objective of the research is to identify and analyse the factors that influence the job satisfaction of workers in this company, as well as their implications for productivity and quality of work. The general hypothesis is that workers' job satisfaction is determined by a combination of situational and dispositional factors, the most relevant of which are salary, company policies, recognition, growth and development, interpersonal relationships and self-fulfilment.

Methodology

The type of research approached was descriptive research, as it seeks to systematically refer to the characteristics of a population, situation or area of interest; in this case, the characteristics that influence job satisfaction.

A 5-level Likert scale was used, the levels used being: Totally Dissatisfied (1), Dissatisfied (2), Indifferent (3), Satisfied (4) and Totally Satisfied (5).

The questionnaire was designed considering two dimensions, one extrinsic satisfaction and two intrinsic satisfaction; considering in the first dimension six extrinsic indicators: Company policies, Supervision, Relationship with supervision, Working conditions, Salary, Interpersonal relations and in the second dimension five intrinsic indicators with the following indicators: Personal self-fulfilment, Professional recognition, Work in itself as a positive stimulus, Responsibility and Opportunities for growth and promotion. The measurement instrument was validated as no observations were obtained.

Collection of information

The direct survey technique was used, for which a questionnaire was designed consisting of a set of structured questions regarding the variables to be measured (Hernández, Fernández, & Baptista, 2010). The questionnaires were applied through the Forms platform, obtaining 26 responses to the instrument sent, it is important to mention that it was applied to all workers in the production area.

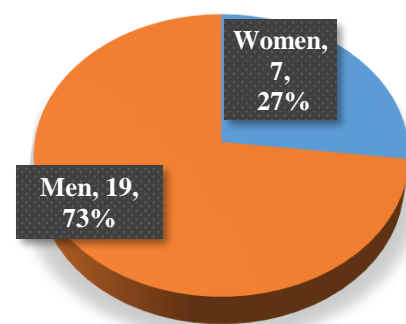
Results

In this section, the results that describe the behaviour of the Extrinsic and Intrinsic variables, which are considered in the labour salification in the production area of the company, are shown by means of graphs.

The behaviour of the graphs is the result of the information obtained through the application of the direct survey to the employees in the production area. This was described in detail in the methodology, with questions on the Likert scale, then the analysis of the results is presented. Grouping the extrinsic and intrinsic variables and applying some statistical techniques for its understanding.

In the following graphic 1, we present the participation of the respondents according to their gender and we observe that the male gender with 19 men occupies 73% of the respondents and only 7 women representing 27%

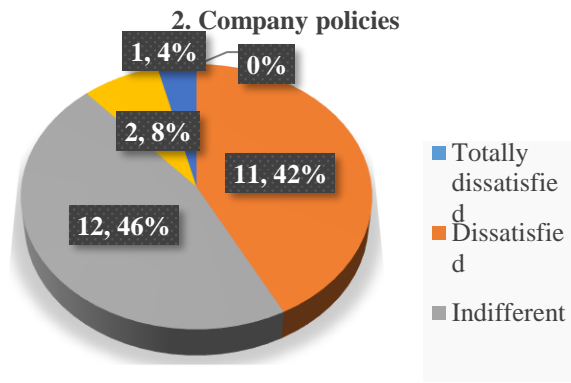
1. Employees surveyed by gender



Graphic 1 Gender of respondents

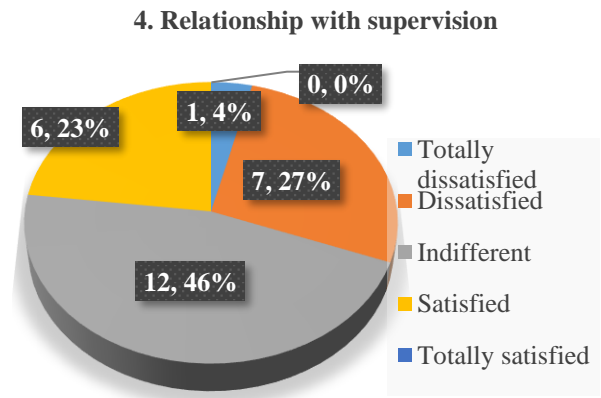
Source: Own elaboration

The six extrinsic variables are presented below.



Graphic 2 Company policies
Source: Own elaboration

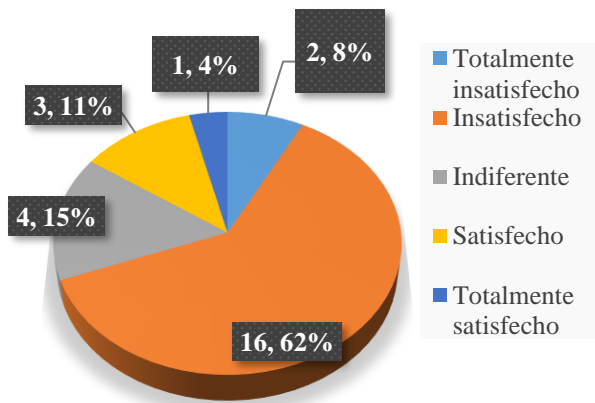
Graphic 2 shows the feelings of the employees in the production area regarding the company's policies. Of the 26 employees surveyed, 11, representing 42%, were dissatisfied in this dimension; however, 12% were indifferent, and it should be noted that there was no response of totally dissatisfied.



Graphic 4 Relationship with supervision
Source: Own elaboration

In graphic 4, it is very interesting to see that 46% are indifferent to the variable Relationship with supervision, as well as the Company Policy shown in graph 1, 27% are dissatisfied, 23% are satisfied and only 4% are totally satisfied.

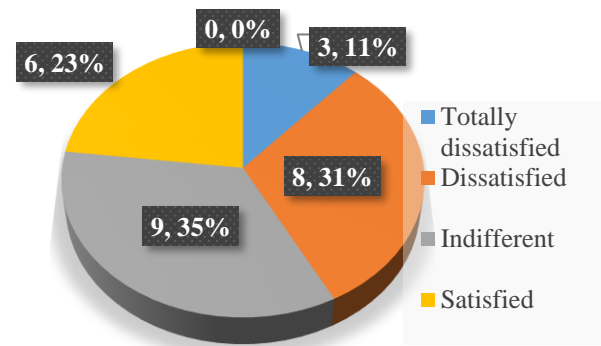
Grafica 3. Supervisión



Graphic 3 Supervision
Source: Own elaboration

Graph 3 shows that 62% of respondents are dissatisfied with the supervision dimension, 15% are indifferent, 11% are satisfied and only 4% are totally dissatisfied.

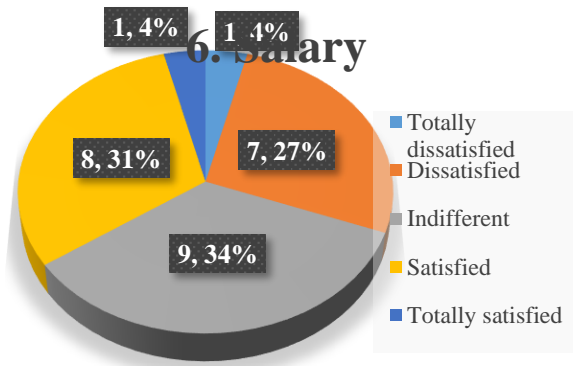
5. Working conditions



Graphic 5 Working conditions
Source: Own elaboration

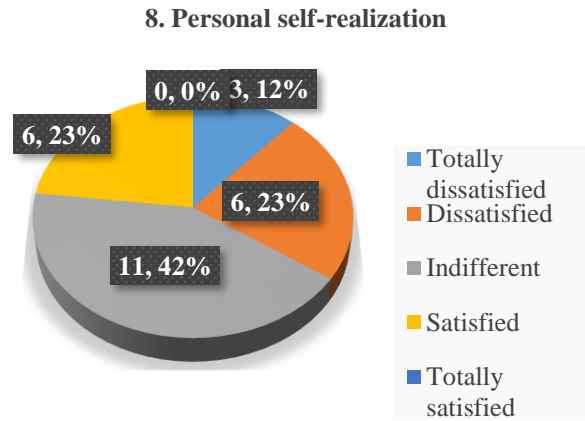
In graphic 5, regarding working conditions, 35% of respondents were indifferent, 31% were dissatisfied and 23% were satisfied.

It is important to note in this graph that there is not a single respondent who is totally satisfied.



Graphic 6 Salary
Source: Own elaboration

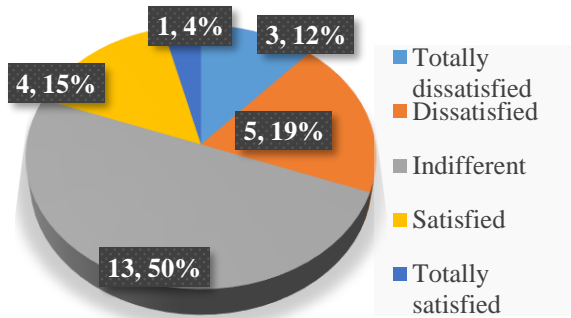
In graphic 6, the dimension of salary as an extrinsic variable refers that 35% of the employees feel satisfied (4% totally satisfied and 31% satisfied), 34% are indifferent. On the other hand, 27% are dissatisfied and only 4% are dissatisfied, representing 1 respondent.



Graphic 8 Personal self-realization
Source: Own elaboration

Personal self-fulfilment is shown in graph 8, 42% of employees indicate indifference, 23% and 12% dissatisfied and totally dissatisfied respectively, which gives a total of 35% which is the highest tendency and only 23% feel satisfied, no one is totally satisfied.

7. Interpersonal relationships.

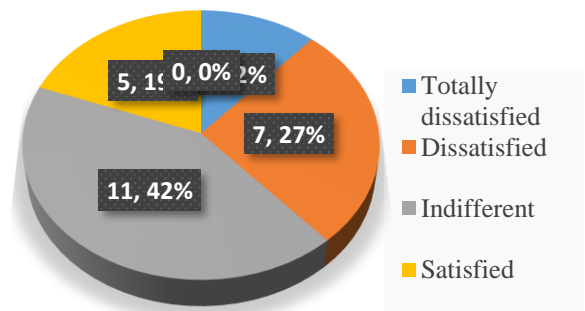


Graphic 7 Interpersonal relationships
Source: Own elaboration

Graphic 7 refers to interpersonal relationships, 50% show indifference, and the other half tend to be dissatisfied at 19%, 12% totally dissatisfied and 15% satisfied together with 4% totally satisfied.

Graphic 8 shows the five dimensions of the intrinsic variables: Personal self-fulfilment, Professional recognition, Work itself as a positive stimulus, Responsibility and Opportunities for growth and promotion.

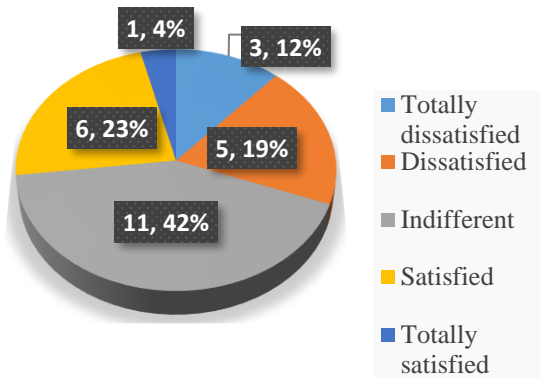
9. Professional recognition.



Graphic 9 Professional recognition
Source: Own elaboration

In graphic 9, information about professional recognition is shown, 42% say they are indifferent, while 27% are dissatisfied along with 12% totally dissatisfied, at the other end of the scale there are responses of totally satisfied and 19% are satisfied.

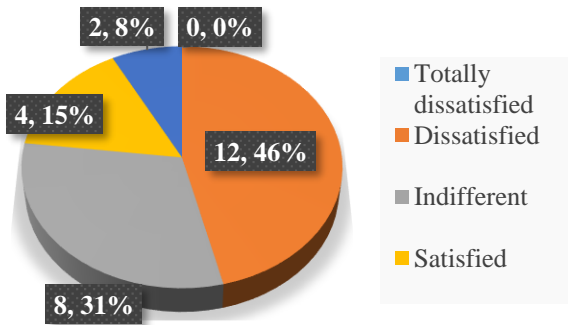
10. The work itself as a positive stimulus.



Graphic 10 Work itself as a positive stimulus
Source: Own elaboration

In graphic 10, of the intrinsic variable of the work itself as a positive stimulus, 27% are satisfied (23% satisfied and 4% totally satisfied) as shown in graph 9, 31% of the employees surveyed are dissatisfied (19%) and totally dissatisfied (12%).

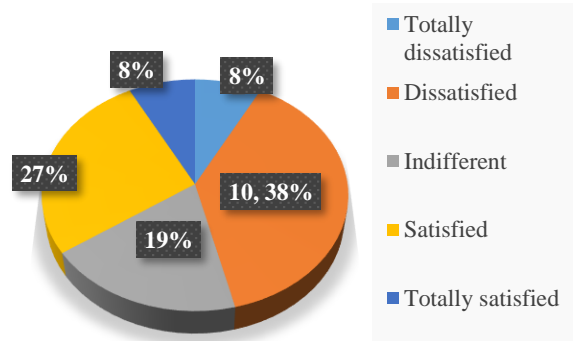
11. Responsibility



Graphic 11 Responsibility
Source: Own elaboration

Graphic 11 shows the feelings of the company's employees with regard to responsibility: 46% are dissatisfied, 15% are satisfied, 8% are totally satisfied and the rest are indifferent.

12. Opportunities for growth and promotion



Graphic 12 Opportunities for growth and promotion
Source: Own elaboration

Graphic 12 shows how employees feel about opportunities for growth and promotion: 38% are dissatisfied, 8% are dissatisfied, while at the other end of the scale 27% and 8% are satisfied and 8% are totally satisfied. It is worth noting that only 19% were indifferent.

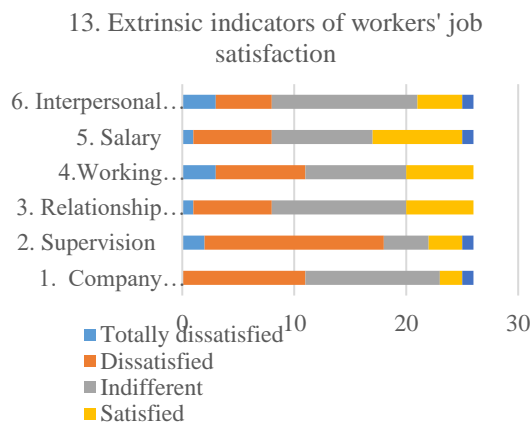
The following table no. 2 shows the results of the survey applied to the employees of the clothing manufacturing company, in which the graphs of the indicators of the extrinsic dimension presented above are recorded in aggregate form to give a general overview of the behaviour of the dimensions.

Extrinsic variables	1. Company policies	2. Supervisión	3. Relationship with supervision	4. Working conditions	5. Salary	6. Interpersonal relations	Total	%
Totally Dissatisfied	0	2	1	3	1	3	10	6%
Dissatisfied	11	16	7	8	7	5	54	35%
Indifferent	12	4	12	9	9	13	59	38%
Satisfied	2	3	6	6	8	4	29	19%
Totally Satisfied	1	1	0	0	1	1	4	3%
Total	26	26	26	26	26	26	156	100%

Table 1 Extrinsic indicators of workers' job satisfaction (p=26)
Source: Own elaboration

Table 1 shows the percentage scores for 6 indicators of extrinsic satisfaction: 38% indicate feeling indifferent, 35% indicate being dissatisfied, 19% indicate being satisfied, 7% feel totally dissatisfied, and finally, only 3% indicate being very satisfied.

It is important to note that the attitude of the employees leans towards indifference and dissatisfaction in the extrinsic dimension. And the highest negative score is given to supervision.



Graphic 13 Extrinsic indicators of workers' job satisfaction
Source: Own elaboration

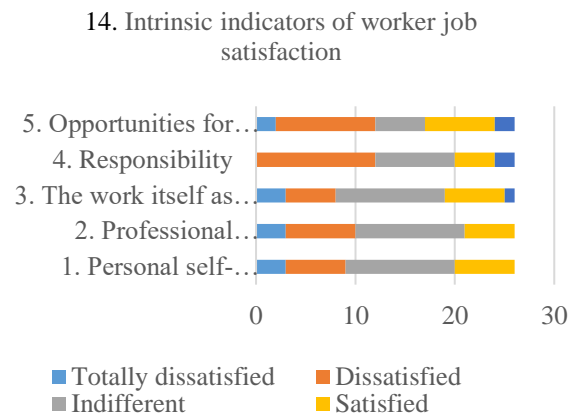
In graphic 13, the results of table 2 are presented in addition, to project the results graphically. It should be noted that the indicators of Relationship with supervision and Working conditions show in detail that there is no employee who is totally satisfied, and in Company policies that no one is totally dissatisfied.

Table 2 shows the results of the indicators of the intrinsic dimension: Personal self-fulfilment, professional recognition, work in itself as a positive stimulus, responsibility and opportunities for growth.

Intrinsic variables	1. Personal self-realization	2. Professional recognition	3. Work itself as a positive stimulus	4. Responsibility and growth	5. Opportunities for growth	Total	%
Totally Dissatisfied	3	3	3	0	2	11	8%
Dissatisfied	6	7	5	12	10	40	31%
Indifferent	11	11	11	8	5	46	35%
Satisfied	6	5	6	4	7	28	22%
Totally Satisfied	0	0	1	2	2	5	4%
Total	26	26	26	26	26	130	100%

Table 2 Intrinsic indicators of workers' job satisfaction (p=26)
Source: Own elaboration

The attitude that workers have towards intrinsic satisfaction indicates that 35% are indifferent; 31% say they are dissatisfied, 22% say they are satisfied, 8% say they are totally dissatisfied and 4% say they are totally satisfied.



Graphic 14 Intrinsic indicators of worker job satisfaction
Source: Own elaboration

In graphic 14, the results of table 3 are presented in addition, in order to project the results graphically. It should be noted that the predominance of indifference in the indicators Work itself, Professional recognition and Self-realisation is visualised in detail.

The data as a whole is then analysed using the following statistical measures: mean, standard deviation and variance.

Dimensions	Mean	Standard deviation	Variance
1. Company policies	2.7308	0.7776	0.6046
2. Supervision	2.4231	0.9454	0.8938
3. Relationship with supervision	2.8846	0.8162	0.6662
4. Working conditions	2.6923	0.9703	0.9415
5. Salary	3.0385	0.9584	0.9185
6. Interpersonal relationships	2.8077	0.9806	0.9615

Table 3 Extrinsic indicators of workers' job satisfaction (p=26)
Source: Own elaboration

Dimensions	Mean	Standard deviation	Variance
1. Personal self-realization Autorrealización personal	2.7692	0.9511	0.9046
2. Professional recognition	2.6923	0.9282	0.8615
3. Work itself as a positive stimulus	2.8846	1.0325	1.0662
4. Responsibility and growth	2.8462	0.9672	0.9354
5. Opportunities for growth	3.2692	1.4299	2.0446

Table 4. Intrinsic components of workers' job satisfaction (n=26)

Source: Own elaboration

Conclusions

In general, it can be concluded that the attitude of the workers is one of indifference with respect to extrinsic satisfaction, since in 5 of the 6 indicators it has the highest percentage of responses (Table 1).

It is worth mentioning that the indicators with the highest levels of indifference are: interpersonal relationships with 50%, company policies with 46% and relationship with supervision with 46%.

It is important to note that two indicators have a level of dissatisfaction: company policies with 42% and supervision with 61%.

With respect to the mean (Table 3), Extrinsic indicators of employee job satisfaction.

The mean values are presented for each of the 6 indicators investigated. The indicator with the highest mean with respect to the average is Salary, with a value of 3.0385; which can be interpreted as positive for the company in terms of the remuneration of its employees.

With the lowest mean value is Supervision, with 2.4231 around the indifferent value with minimum tendency to satisfied and dissatisfied.

In terms of standard deviation, the indicators that are more dispersed from the mean are the following: Interpersonal relations 0.9806; Working conditions with 0.9703; Salary 0.9584 and Supervision 0.9454 which reflects a variability with respect to the mean in the opinion of the employees, going from indifferent to satisfied and from indifferent to dissatisfied; they are Company policies and relationship with supervision although the standard deviation is lower also move to the same levels of satisfaction from indifferent to satisfied and from indifferent to dissatisfied.

The attitude that the workers have towards intrinsic satisfaction is oriented towards indifference and dissatisfaction with 66% (Table 2).

It is worth mentioning that the indicators Personal self-realisation, professional recognition, work in itself as a positive stimulus, have an attitude of indifference with 42% respectively; with respect to Responsibility 46% are dissatisfied and with respect to Opportunities for growth 38% are dissatisfied.

Table 4, Intrinsic indicators of employee job satisfaction. The mean values are presented for each of the 5 components surveyed. The dimension with the highest mean is Opportunities for growth and promotion, with a value of 3.2692, which can be interpreted as a strength of the company in terms of its capacity to retain and train human capital.

With the lowest mean value is Professional recognition, with 2.6923, which is around the indifferent value with a tendency to satisfied. In terms of standard deviation, the indicators that are more dispersed from the mean are the following: opportunities for growth and promotion, with 1.4299, which reflects a high variability in the opinion of employees. Work itself as a positive stimulus also shows a high dispersion, with 1.0325. The other three values responsibility, personal self-realisation and professional recognition show very similar values dispersed from the mean, slightly less than 1.0325.

Recommendations

Regarding extrinsic satisfaction

1. Company policies

Make company policies known and verify that they are in accordance with legal guidelines.

2. Supervision and

3. Relations with supervision.

Conduct feedback talks between supervisors and employees to avoid communication conflicts between what they are asked to do and what they do,

4. Working conditions

Improve working conditions in terms of lighting, noise, ventilation and cleanliness.

5. Wages.

Maintain or improve the remuneration of employees not only in monetary terms.

6. Work relations

Improve employment contracts and clearly explain the obligations of both employer and employees.

In terms of intrinsic satisfaction

1. Personal self-fulfilment

Seek strategies for employees such as finishing secondary school or high school in order to get a promotion.

2. Professional recognition

Recognise a job well done, as well as the responsibility for its accomplishment (employee of the month).

3. The work itself as a positive stimulus.

Establish training in different jobs to avoid monotony.

4. Responsibility and growth

Open a mailbox for improvements, where all employees can participate to stimulate creativity.

5. Opportunities for promotion and growth.

Identify promotion opportunities, make them known to all employees so that they can participate fairly and grow within the company.

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Bibliometric analysis of publications on the use of artificial intelligence in digital marketing**Análisis bibliométrico sobre publicaciones del uso de la inteligencia artificial en el marketing digital**

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Abstract

This study analyzes the evolution of research on machine learning in marketing from 1991 to November 16, 2022. The search was carried out in several databases and the terms "machine learning" and "marketing" were used. 2,358 articles were found, from which important indicators were obtained: 2021 has been the year with the highest publication activity with 234 articles. The most productive authors are from various fields, including computer science, marketing, and data analysis. The most cited article focuses on the application of deep learning in the fashion industry. The results suggest that research on aprendizaje automático in marketing is growing rapidly and has the potential to transform marketing practices. The need for more research is highlighted to assess the quality of the research and its impact on the scientific community. Bibliometric analysis is a tool that allows the researcher to carry out bibliographic searches effectively, since it generates an overview of the trends in research on the subject

Resumen

Este estudio analiza la evolución de la investigación sobre el aprendizaje automático en marketing desde 1991 hasta el 16 de noviembre de 2022. La búsqueda se realizó en varias bases de datos y se utilizaron los términos "aprendizaje automático" y "marketing". Se encontraron 2,358 artículos, de los cuáles se obtuvieron importantes indicadores: el año 2021 ha sido el de mayor actividad de publicación con 234 artículos. Los autores más productivos son de diversos campos, incluyendo ciencias de la computación, marketing y análisis de datos. El artículo más citado se centra en la aplicación del aprendizaje profundo en la industria de la moda. Los resultados sugieren que la investigación sobre el aprendizaje automático en marketing está creciendo rápidamente y tiene el potencial de transformar las prácticas de marketing. Se destaca la necesidad de más investigación para evaluar la calidad de la investigación y su impacto en la comunidad científica. El análisis bibliométrico es una herramienta que permite al investigador realizar búsquedas bibliográficas de manera eficaz, ya que genera un panorama general sobre las tendencias en la investigación sobre el tema.

Machine learning, Marketing, Bibliometric Analysis

Aprendizaje automático, Marketing, Análisis bibliométrico

Citation: GUTIERREZ-BELTRAN, Brenda Yadira, GOMEZ-BARBA, Leopoldo and PRECIADO-ORTIZ, Claudia Leticia. Bibliometric analysis of publications on the use of artificial intelligence in digital marketing. *Journal-Business Administration-Marketing; Accounting*. 2023. 7-13:43-50.

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† Researcher contributing as first author.

Introduction

One of the most significant goals of research is the dissemination of results through documents (scientific publications), where observations and achievements of work are compiled to be shared with the wider community, thereby generating a positive impact and fostering growth or enhancement within society. Furthermore, the sheer volume of publications stemming from the eager pursuit of knowledge drives us into an escalating spiral of information that is more accessible today than ever before through electronic means, resulting in the quest for research output with impact and quality becoming exhaustive and possibly unattainable in its entirety to encompass the breadth of the subject of interest. Consequently, it becomes advantageous to employ mechanisms for analyzing the quantity of products generated as a consequence of the research process, in order to assess the quality of the knowledge generation process and its impact within the scientific realm (Christian Federico Rueda-Clausen Gómez et al., 2005).

The acquisition of bibliometric indicators serves as a means to measure growth in scientific production, while also enabling the analysis of the research's impact within the universe of study. This analysis relies on quantitative values derived from production, its interrelation with other fields, areas of heightened interest, and more, all of which are derived from scientific publications.

Bibliometrics stands as a subdiscipline of scientometrics, providing insights into the outcomes of the research process, including the volume of output, its temporal evolution, the attained visibility, and the structure of the research (Tatiana Alejandra Escorcía Otalora, 2008). On the other hand, bibliometric analysis serves as the means to obtain and analyze indicators such as the number of articles, impact factor, productivity index, immediacy, collaboration index, among others (Christian Federico Rueda-Clausen Gómez et al., 2005).

In the present study, bibliometric analysis has been employed to gather information regarding machine learning in the context of marketing and to identify the relationship between these two fields of study.

This analysis will be utilized to infer areas of opportunity and construct a model focused on the application of machine learning to address marketing challenges, as the topic of Innovation in Digital Marketing has been a prominent research trend over the last 5 years (2018-2022) (Muhammad Rosyihuddin & Sudarmiatin, 2023).

Data and methods

The data for this study were sourced from Scopus as of November 16, 2022. Scopus was chosen as the search engine due to its status as one of the largest databases of peer-reviewed scientific literature and citations. The search terms "machine learning" and "marketing" were utilized as the search topic. This topic-based search indicates that the terms "machine learning" and "marketing" are contained within the title, abstract, and/or keywords of the publications.

Search results

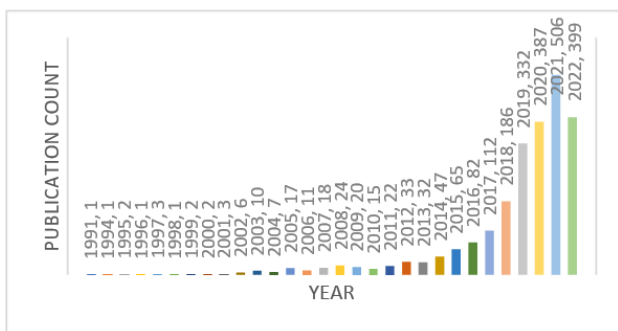
The time period considered ranged from 1991 to November 16, 2022, serving as the cutoff date. It is worth noting that if the same search were conducted on a different date, the results might diverge due to Scopus being a dynamically updated database. In total, 2358 publications related to machine learning in marketing were identified. The search encompassed all types of publications. Examining the document types, the majority consisted of conference papers ($n = 1047$) and articles ($n = 1038$), with the remainder comprising book chapters, books, and reviews, among others. Each publication in Scopus contains extensive details, including the publication year, authors, author affiliations, title, abstract, source journal, subject categories, and references. The data from these 2358 publications stored in Scopus were exported to Excel.

A spreadsheet and statistical software were employed to analyze the following indicators: (1) article count, (2) productivity index, (3) impact factor, (4) immediacy, (5) median age of citations, (6) collaboration index, (7) source data, and (8) keywords.

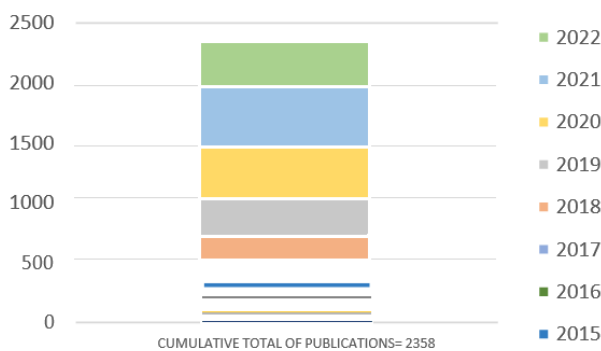
Results and discussions

Article count

In this indicator, the number of articles focusing on machine learning in marketing was tallied from 1991 to 2022, providing insights into the annual publication volume (Christian Federico Rueda-Clausen Gómez et al., 2005). As depicted in Figure 1, the count of publications concerning machine learning in marketing has steadily increased since 2005. There was only one publication on machine learning in marketing in 1991. Up until 2004, publications on the topic remained limited (no more than 10 publications per year). Starting from 2005, a consistent growth in the number of publications was observed each year, with exceptions in 2006, 2010, and 2013, when a decline was evident. The peak of publications was reached in 2021 (n = 506), followed by a subsequent decline in the trend (n = 399 in 2022). Examining the cumulative number of publications in Figure 2, it can be affirmed that the significance of research on machine learning in marketing has experienced a substantial rise. It took approximately twelve years (from 1991 to 2005) to accumulate a total of 56 publications within the field of machine learning in marketing. In the ensuing four years (from 2006 to 2022), this number surged to a cumulative total of 2358 publications.



Graphic 1 Indicator: article count, crafted in spreadsheet



Graphic 2 Cumulative publications from 1991 to 2022, created in spreadsheet

Productivity index

This indicator is widely used in productivity assessment and is measured by the number of publications per researcher, institution, or group. It is governed by Lotka's law, as it serves as an instrument for describing thematic areas and is defined as the decimal logarithm of the number of articles produced (Tatiana Alejandra Escorcía Otorola, 2008). Personal factors, certain environmental and situational aspects, as well as behavioral factors, also influence the number of publications by individuals. The most influential factor is funding (Wahid et al., 2022). The 2358 publications were authored by a total of 159 different authors. The majority of authors, 51.57% (n = 82/159), are credited with only two publications on the subject of machine learning in marketing, while 73.58% (n = 117/159) are credited with at least three publications. These authors are categorized as intermediate producers. Additionally, 0.628% (n = 1/159) are credited with over 10 publications and are considered significant producers (Tatiana Alejandra Escorcía Otorola, 2008). Table 1 presents the top 3 most productive authors in the field of machine learning in marketing. This index is based on the total number of authors and publications and not on author order. Kar A.K. is the most productive author in the field of machine learning in marketing, with eleven publications, followed by Lessmann, S., with nine, and Goto, M., and Salas-Rueda, R.A., each with six publications. The top 3 authors have an average of 12.94 publications.

Author name	Number of publications	Productivity percentage
Kar, A.K.	11	0.47%
Lessmann, S.	9	0.38%
Goto, M.	6	0.25%
Salas-Rueda, R.A.	6	0.25%

Table 1 Most productive authors utilizing machine learning in marketing

Source: Own elaboration

Impact factor

While the impact factor of journals remains the most debated bibliometric indicator and has exerted a significant influence on the scientific domain (Larivière & Sugimoto, 2019), it allows for the assessment and comparison of a journal's significance relative to others within its field (Christian Federico Rueda-Clausen Gómez et al., 2005).

It represents the quotient between the number of citations to articles from the given journal and the total number of articles published within the past two years. In total, out of the 2358 publications, 953 were published in journals, indicating a diverse range of research topics and the multidisciplinary nature of machine learning research in marketing. Among these 953 publications, 694 journals (72.82%) contributed only one publication, while 131 journals (13.74%) published two articles solely on the topic of machine learning in marketing. Furthermore, 101 journals published between 3 and 9 articles (10.61%), and 27 journals published ten or more articles on the subject (02.83%). Table 2 provides insights into the 10 most active journals in the field of machine learning research in marketing. These ten journals, accounting for only 1.04% of all journals publishing on machine learning in marketing, have contributed over one-fifth of all machine learning in marketing publications (22.36%; n= 454/2030). The journal "Journal of the Academy of Marketing Science" stood out with the highest impact factor regarding the 2021 published article "A strategic framework for artificial intelligence in marketing," garnering 113 citations during 2021 and 2022 out of a total of 905, yielding an IF = 8.0088, signifying an average of 8 publications per year.

RANK	JOURNAL TITLE	NUMBER OF PUBLICATIONS
1	Lecture Notes In Computer Science Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics	72
2	Advances In Intelligent Systems And Computing	63
3	ACM International Conference Proceeding Series	62
4	Lecture Notes In Networks And Systems	36
5	Communications In Computer And Information Science	32
5	Expert Systems With Applications	32
6	Ceur Workshop Proceedings	28
7	IEEE Access	24
7	Journal Of Physics Conference Series	24
8	Journal Of Business Research	23
8	Smart Innovation Systems And Technologies	23
9	Lecture Notes In Electrical Engineering	18
10	International Journal Of Advanced Computer Science And Applications	17

Table 2 Top 10 Journals with Most Publications on Machine Learning in Marketing
Source: Own elaboration

Immediacy

Immediacy is defined as the ratio of citations received by works published during a given year, divided by the total number of articles published in the same journal and year (Tatiana Alejandra Escorcía Otalora, 2008).

In the case of the year 2021 (see Figure 1), during which a higher number of publications on machine learning in marketing occurred, the "Journal of the Academy of Marketing Science" published 1 article, which received 113 citations. Additionally, the journal accumulated a total of 2216 citations across 65 publications within that same year, resulting in an immediacy index of 34.09 and an equivalent impact factor of 13.87, as reported on the Scimago Journal Rank website.

Median citations age

This metric aids in evaluating the range of the age of journal articles that have been cited, and it can be used to make decisions regarding archiving and preservation (Eduardo Luis De Vito, 2006). Publications concerning machine learning in marketing have an average age of 4.43 years. This indicator represents the average age across each publication. The researcher employed the Scopus database to analyze the number of times machine learning in marketing publications were cited.

In total, the 2358 publications were cited 30,517 times as references in other publications. The average citation per publication is 12.94. Of the total, 36.51% (n = 861/2358) received zero citations up until the cutoff date of November 16, 2022.

Among the 2358 machine learning in marketing publications, 57.97% (n = 1367/2358) received between 1 and 49 citations, 03.30% (n = 78/2358) received between 50 and 99 citations, and 02.20% (n= 52/2358) received 100 citations or more.

Table 3 presents the ten most cited publications. The most cited article is "Machine Learning: Trends, Perspectives, and Prospects" by Jordan M.I., Mitchell T.M. This article has been cited 2722 times since its publication in 2015 (up to November 16, 2022). It has also been the publication with the highest average citations per year, with an average of 544.4 citations annually.

Rank	Title	Citations
1	Machine Learning: Trends, perspectives, and prospects	722
2	A survey of text classification algorithms	1087
3	Ad click prediction: A view from the trenches	529
4	Computer-based personality judgments are more accurate than those made by humans	513
5	Field-aware factorization machines for CTR prediction	415
6	Insights on travel search engines by mining user-generated and crowdsourced content	367
7	Classification of sentiment reviews using n-gram aprendizaje automático approach	356
8	Practical lessons from predicting clicks on ads at Facebook	335
9	Advertising content and consumer engagement on social media: Evidence from Facebook	321
10	The use of data mining and neural networks for forecasting stock market returns	292

Table 3 Top 10 Most Cited Publications

Source: Own elaboration

Collaboration Index

Studies on scientific collaboration hold a significant presence in bibliometric research and are commonly used as a measure of scientific collaboration among multiple authors, allowing for the determination of research group sizes (Tatiana Alexandra Escorcía Ojalora, 2008). The average number of authors per publication was 3.4. Among the publications, 12.46% ($n = 294/2358$) were single-authored, 23.15% ($n = 546/2358$) had two authors, 24.59% ($n = 580/2358$) had three authors, and 39.77% ($n = 938/2358$) had four or more authors (with a maximum of 27 authors). Multi-author publications in the field of machine learning in marketing account for approximately 87.54% of the total. The collaboration patterns of authors publishing on machine learning in marketing were analyzed using Scopus. Authors in the collaboration network published at least two articles on the topic.

The author collaboration network is represented in Figure 1. Collaboration groups are denoted by colors, with the size of circles indicating the number of publications, and lines between two authors depicting their cooperation. Representing co-authorship collaboration, nine main author groups can be distinguished. The primary ones are Chen, Wang, and Zhang.

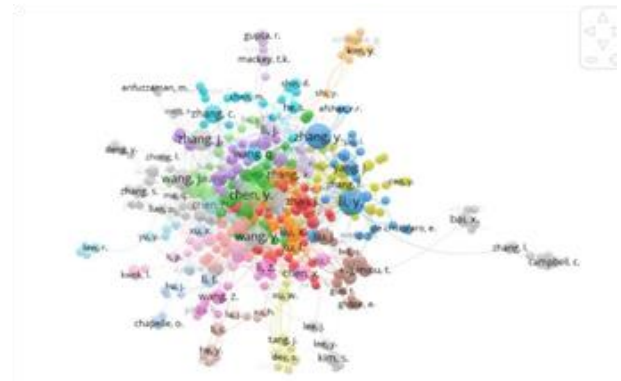


Figure 1 Collaboration Relationship Among Authors, Created in VOSviewer

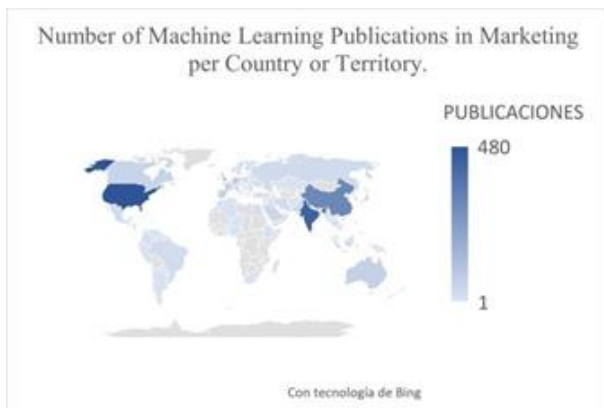
Origin Data

Publications on Machine Learning in Marketing originate from 102 different countries or territories. Of these, 35.29% are located in Asia, 34.31% in Europe, 17.65% in the Americas, 10.78% in Africa, and 01.96% in Oceania. Figure 3 displays the number of publications on machine learning per country. Fifty-one countries (50%) produced 10 or more publications, while another fifty-one countries or territories (50%) have produced between 1 and 9 publications. The United States produced the highest number of publications ($n = 480$), followed by India ($n = 434$), and China ($n = 305$). Table 4 shows the top 10 most productive countries and territories in machine learning research in marketing. Economic development appears to contribute to scientific and academic investment, as all seven major industrialized countries in the world (G7: USA, Japan, Italy, Germany, UK, Canada, and France) ranked in the top 10 most productive countries publishing on machine learning in marketing. The dominance pattern of the G7 has been observed across most scientific fields, reflecting the high economic activity and level of these countries. (Y. Liu & Yang, 2022). The total count of countries and territories from the 2975 publications with country or territory information was 2857 (an author may be affiliated with more than one country or territory, or a publication may be written by authors from different countries or territories). Expanding on the geographical information, an unequal distribution can also be observed across continents when examining the data: Asia accounted for 47.71% of the publications ($n = 1363/2857$), Europe for 25.06% ($n = 716/2857$), the Americas for 22.05% ($n = 630/2857$), Africa for 02.70% ($n = 77/2857$), and Oceania for 02.49% ($n = 71/2857$).

The cooperation network (i.e., co-authorship) among countries and territories publishing on machine learning in marketing was analyzed. Countries and territories in the network published at least ten publications on the subject. Countries or territories not connected with others in the network are not included. The outcome of the cooperation network among countries from each continent is presented in Figure 4. Colors represent countries from each continent that had publications on Machine Learning in Marketing. Funding, collaboration, and academic qualifications can influence a country's publication growth. The number of universities and ISI-indexed journals also contribute to the publication output of countries. (Wahid et al., 2022).



Graphic 4 Continent-wise Country Grouping with Most Publications on Machine Learning in Marketing, created using spreadsheet software



Graphic 3 Number of Machine Learning in Marketing Publications by Country or Territory, created using spreadsheet software

Rank	Country	Publications
1	United States	480
2	India	434
3	China	305
4	United Kingdom	111
5	Germany	78
6	Italy	70
7	Japan	64
7	Spain	64
8	Australia	61
9	Taiwan	57
9	Turkey	57
10	Canada	53

Table 4 Top 10 Countries with the Most Publications on Machine Learning in Marketing

Source: Own elaboration

Institutions

At the institutional level, situational and environmental factors such as funding, electronic information resources, university-industry relationships, the availability of books, professional journals positively influence the publication output of institutes. Additionally, factors such as lower teaching loads for researchers, research permissions, and attendance at international conferences enhance the publication productivity of the institute. (Wahid et al., 2022). A total of 160 different research institutions participated in the 1065 publications with institution information. It should be noted that an author may be affiliated with more than one institution, or a publication may be authored by individuals from different institutions. Of the total institutions, 86.87% (n = 139/160) were involved in fewer than 10 publications, and 13.12% (n = 21/160) were involved in 10 or more publications on the topic of machine learning in marketing. Table 5 provides information about the top 3 most productive institutions on the topic of machine learning in marketing, all of which are located in the United States of America. The institution with the highest number of publications on the topic (n= 15) is Carnegie Mellon University. The majority of the top 10 institutions were universities.

RANK	INSTITUTION	PUBLICATIONS
1	Carnegie Mellon University	15
2	University of Pennsylvania	14
2	Massachusetts Institute of Technology	14
3	University of Southern California	13
3	Indian Institute of Technology Delhi	13
3	Amity University	13
3	K L Deemed to be University	13

Table 5 Top 3 Most Productive Institutions in Machine Learning in Marketing

Source: Own elaboration

Keyword analysis

Keyword identification aids in discerning the theme or category of each publication. In the total count of 2358 publications on machine learning in marketing, 894 publications were identified with the keywords "Machine Learning" and/or "Marketing," showcasing a significant range of topics associated with machine learning in marketing publications. Table 6 presents the top 9 subject areas assigned by Scopus that are most frequently linked to the themes of machine learning in marketing publications. Figure 2 provides a legend of the names of the top 10 principal subject categories, accompanied by the total number of machine learning in marketing publications belonging to these categories.

The thematic category encompassing the most publications in the field of machine learning in marketing was "Machine Learning" with 1383 publications, followed by "Marketing" with 762 publications. Publications on "Machine Learning" are documented from the years 2001 to 2022, with the year 2021 being particularly prolific on this subject. As for "Marketing," publications began to emerge from the year 2003, with 2021 marking the year with the highest number of publications.



Figure 2 Keywords Cloud, created using WordCloud.com

RAKN	KEYWORD	PUBLICATIONS
1	Machine Learning	531
2	Marketing	363
3	Learning Systems	1
4	Commerce	47
5	Artificial Intelligence	105
6	Data Mining	38
7	Learning Algorithms	49
8	Sales	47
9	Forecasting	38

Table 6 Top 10 Keywords
Source: Own elaboration

Most utilized machine learning areas in marketing problems

Machine learning has a significant influence in the field of marketing, enabling deeper analysis and more precise decision-making. By employing machine learning algorithms, marketing professionals can scrutinize vast amounts of data to uncover patterns and trends, predict customer behaviors, and personalize advertising efforts. Upon reviewing the articles, it becomes evident that they are primarily focused on utilizing machine learning algorithms to address prediction and/or click-through rate enhancement in Facebook ads, sentiment analysis on Twitter, user behavior on Facebook, comments analysis on Facebook, popular topics on Twitter, music genre classification, and customer purchase prediction (see Figure 3). Likewise, advancements in AI, machine learning (ML), data science, and natural language processing (NLP) are enabling the development of conversational bots for a variety of applications, benefiting humans and contributing to the rapid growth in the number of chatbots. Currently, they play a positive role in shaping consumers' purchase intentions. (Liu & Duffy, 2023)

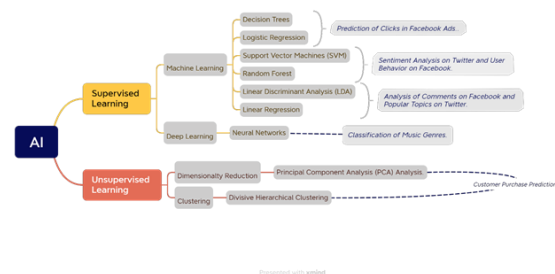


Figure 3 Most Utilized Algorithms in Digital Marketing, created using Xmind based on a self-generated table with 50 sample articles

Conclusions

In conclusion, Bibliometrics has become a fundamental tool for measuring the impact and evolution of scientific production, enabling the understanding of trends within specific subjects. In the case of machine learning in marketing, significant growth has been observed during the year 2021, driven by the impetus of e-commerce due to the pandemic. Additionally, it is evident that countries providing substantial support to scientific research continue to lead in terms of productivity in publications, such as the United States of America, India, China, and Canada.

In this regard, the present bibliometric analysis emerges as a valuable tool for analysis and decision-making within the scientific and technological sphere concerning machine learning in marketing. Furthermore, it is observed that there is a greater utilization of machine learning techniques in marketing, with approximately 75% being supervised learning algorithms, while unsupervised and other algorithms comprise around 25%. This suggests that there is an inclination towards automated detection using data containing some form of event identification or behavior to study. On the other hand, the detection of patterns without labels or identifiers remains a challenge, as the associated variable for the identified label is unknown. Such patterns indicate the presence of a phenomenon, yet they do not inherently explain it or provide actionable insights to the user.

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Instructions for Scientific, Technological and Innovation Publication

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

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

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

International Identification of Science - Technology and Innovation

ID 1st author: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st author: (Scholar-PNPC or SNI-CONAHCYT) (No.10 Times New Roman)

ID 1st coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 2nd coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 2nd coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 3rd coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 3rd coauthor: (Scholar or SNI) (No.10 Times New Roman)

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

Abstract (In English, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In English)

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

Abstract (In Spanish, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In Spanish)

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

Citation: Surname (IN UPPERCASE), Name 1st Author, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor. Paper Title. Journal-Business Administration -Marketing; Accounting. Year 1-1: 1-11 [Times New Roman No.10]

* Correspondence to Author (example@example.org)

† Researcher contributing as first author.

Introduction

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

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

What is your added value with respect to other techniques?

Clearly focus each of its features

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

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

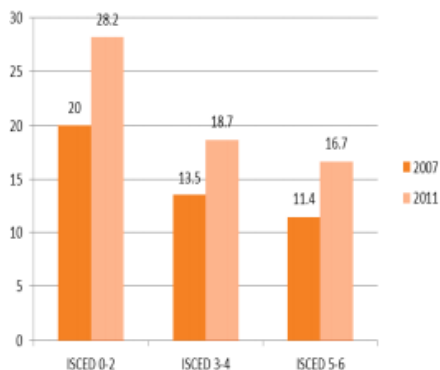
[Title No.12 in Times New Roman, single spaced and Bold]

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

Including graphs, figures and tables-Editable

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

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



Graphic 1 Title and Source (in italics).

Should not be images-everything must be editable.

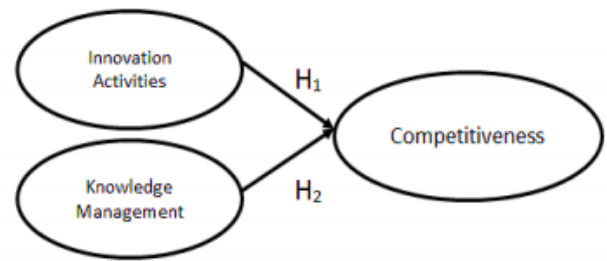


Figure 1 Title and Source (in italics).

Should not be images-everything must be editable.

Variable	model with constant			model with constant and trend		
	test statistic	Optimal lag	critical value	test statistic	Optimal lag	critical value
VOL	-	0	-	-	0	-
OPT	-	0	-	-	0	-
PES	-	0	-	-	0	-
NOR	-	0	-	-	0	-
ER	-	1	-	-	1	-

Table 1 Title and Source (in italics).

Should not be images-everything must be editable.

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

For the use of equations, noted as follows:

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

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

Methodology

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

Results

The results shall be by section of the Article.

Annexes

Tables and adequate sources

Thanks

Indicate if they were financed by any institution, University or company.

Instructions for Scientific, Technological and Innovation Publication

Conclusions

Explain clearly the results and possibilities of improvement.

References

Use APA system. Should not be numbered, nor with bullets, however if necessary numbering will be because reference or mention is made somewhere in the Article.

Use Roman Alphabet, all references you have used must be in the Roman Alphabet, even if you have quoted an Article, book in any of the official languages of the United Nations (English, French, German, Chinese, Russian, Portuguese, Italian, Spanish, Arabic), you must write the reference in Roman script and not in any of the official languages.

Technical Specifications

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

Journal Name

Article title

Abstract

Keywords

Article sections, for example:

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

Author Name (s)

Email Correspondence to Author

References

Intellectual Property Requirements for editing:

- Authentic Signature in Colour of Originality Format Author and Co-authors.
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