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The works must be unpublished and refer to topics of education, crowdsourcing, operation of academics' corps, regional development, fiscal, architecture, networks and other topics related to Social Sciences.

Presentation of the Content

In volume nine, issue nineteen, as the first article we present, *Integration process with the officials of a board of director of the box of the National Electoral Institute*, by CORTÉS-ALVAREZ, Yolanda, ESTRELLA-VELÁZQUEZ, Rafael, GONZALEZ-NERI, Aarón Iván and QUEZADA-MORENO, Maribel, with secondment in the Universidad Autónoma de Querétaro, as a second article we present, *Marketing plan: household products cleaning company, in Villahermosa Tabasco*, by GARCIA-JERÓNIMO, Irma, MOREJÓN-SÁNCHEZ, Juana María, GARCÍA-JERÓNIMO, Beatriz and NOTARIO-PRIEGO, Ezequiel, with an appointment at the Tecnológico Nacional de México - Instituto Tecnológico de Villahermosa, as a third article we present, *Level of burnout syndrome in teachers of the Tecnológico Nacional de México campus Villahermosa in times of COVID-19*, by ARIAS-RODRÍGUEZ, Catalina, RODRÍGUEZ-REYES, Tomasa, VERGEL-ESCAMILLA, Manuel and THOMPSON-HERNÁNDEZ, Elsy Leticia, with secondment at the Tecnológico Nacional de México Campus Villahermosa, as fourth article we present, *Current situation of the guava agrifood chain in Zacatecas, Mexico*, by SÁNCHEZ-TOLEDANO, Blanca, BORJA-BRAVO, Mercedes, ZEGBE, Jorge A. and FIGUEROA-GONZÁLEZ, Juan José, with secondment at the Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias.

Content

Article **ECORFAN Journal-Spain**
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Integration process with the officials of a board of director of the box of the National Electoral Institute

Proceso de integración con las y los funcionarios de mesa directiva de casilla del Instituto Nacional Electoral

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Abstract

With this investigation, the objective was to know the integration process with the other officials on an electoral day so that Mexicans know that activities they should carry out if they receive the assignment of President of a Polling Station for an election day.

Electoral, Integration, Investigation, Objective

Resumen

Con esta investigación se tuvo el objetivo de conocer el proceso de Integración con las y los demás funcionarios de una mesa directiva de casilla para que los mexicanos sepan qué actividades deben realizar si reciben la asignación de presidente de una casilla para una jornada electoral.

Electoral, Integración, Investigación, Objetivo

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Introduction

In Mexico, when there are elections, in order to vote for a candidate, there is the National Electoral Institute (INE).

The author Sarango (2021:14) mentions that in the day to day there is a world surrounded by technology, since there are more mobile phones, personal computers, Tablets, Smartphones than people and adding too many devices that allow sending information in real time to any place in the world in seconds of time. In relation to the above, we had the opportunity to receive the function of president of a polling station and in accordance with the above, we had the objective of knowing the process of integration with the other officials of a polling station. And thanks to this process, we continue to have clean election days with the peace of mind that those who participate in them were responsible citizens, according to Bonilla-Toralba (2021:13). With the aforementioned, this research is discussed and the result is the process for Mexicans at a national level to learn about the activity of the president and the other members of a polling station's polling station.

Literature review

The authors Hondge, B., Anthony, W. and Gales, L. (2001:7) mention that there are three key points about the nature of organisations and businesses: first, they are composed of individuals; second, the division of labour among the members of a business is a decisive aspect; and third, the importance of goals and objectives for the organisation itself. So an organisation or business can be defined as: two or more people divide the work among their individuals and pursue shared goals, which for this work, according to the author Tettamanani, M. *et al* (2023:25) to ensure a good choice.

For the author Nepomuceno, A. *et al* (2001), information is a fundamental concept of cybernetics, and this in turn, is the science that studies machines and living beings from their ability to perceive and conserve information, transform it into signals and transmit them through communication channels so that a certain purpose is fulfilled.

For the author Suarez, R. (2007), computer science or information technology is the science that studies the techniques and automated processes that act on data and information.

According to Article 5, paragraph 4, Article 36, section V, Article 41, Base V., Section A. paragraph 2. A. paragraph 2. of the Political Constitution of the United Mexican States. The function of president of a polling station's polling station is received and in accordance with the General Law of Electoral Institutions and Procedures in its Article 82, Numeral 1, which establishes that polling stations will be composed of a president, a secretary, two tellers and three general substitutes.

According to the author Ramírez, R. (2023:192), Article 85 of the General Law on Electoral Institutions and Procedures, in subsection a), establishes that as the electoral authority, one must preside over the work of the polling station and ensure compliance with the provisions contained in the aforementioned law throughout the course of Election Day. From this moment on, the ability of the president to develop teamwork and/or within the process can also be observed that by executing a whatsapp to be in communication with the polling station officials, including this platform in the process means that this is a contribution to citizen participation in electoral processes, given that by opening a whatsapp in a period of 30 days prior to Election Day, if some questions are asked to the polling station officials, it is possible to be in communication with them, if some questions are asked to the officials about the activities to be carried out, the value of responsibility is developed and they can come to feel that they are important in the process, and not because they are obliged by the Political Constitution of the United Mexican States and the General Law of Institutions and Electoral Procedures, but because as human beings who are part of a society, they are included in what is needed on a given date. That there will be a collaborative work that must be carried out in the polling station that is president and thus the INE staff working as a team with the president of the polling station, then the attributions that must be carried out in the polling station, established in articles 85, 86 and 87 of the aforementioned law, will be achieved.

Methodology

The hypothesis used in this study was: The integration process with the other officials of a polling station in a municipality is carried out according to the information handled in the technology systems of the National Electoral Institute (INE). The following variables were then established: Dependent. Process of integration with the other officials of a polling station in a municipality, and independent. The Institute's technology systems.

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Therefore, there is a relationship between:

a) National Electoral Institute

b) Information technology

c) Polling station

d) Municipal, national and international context.

Therefore, the municipal context, National Electoral Institute, the dimensions known as variables that intervened in this research could be determined, as indicated at the beginning of this section, with the following characteristics:

Dependent variable: Integration process with the other officials of a polling station in a municipality.

This variable indicates that for the case studies considered in the study, there were polling stations and therefore they have the characteristic of having a president. And another characteristic is: the presidents of polling stations can act in them to come out ahead in the face of any circumstance and carry out a clean Election Day, where according to the authors Benitez, Benitez & Botero (2021:45) the values that managed to be strengthened during an Election Day were communication, respect and solidarity.

Independent variable: Institute technology systems.

In this research, a case study of a polling station was carried out, a plan of action was drawn up in the field for the polling station in order to collect information by devising a strategy of approaching the president of the polling station and the INE staff (observation or immersion in the field). (Observation or immersion in the field). The approach strategies to understand the phenomena in the polling station environment were executed in the following way:

In order to describe and understand the detailed means through which the presiding officer and INE staff act in a meaningful way for the polling station and in the scope of the use of the technologies they created for the polling station. Contact was established with the presidente de casilla and once the first interview was conducted, sufficient interviews were conducted to obtain the necessary information over a period of approximately three months.

Results

Article 85 of the General Law on Electoral Institutions and Procedures (Ley General de Instituciones y Procedimientos Electorales), in section a), establishes that as an electoral authority, the presiding officer must preside over the work of the polling station and ensure compliance with the provisions contained in the aforementioned law throughout the course of Election Day. From this moment on, the ability of the presiding officer to develop the teamwork and/or collaboration that must be carried out in the polling station over which he/she presides arises. In this way, the attributions that each of the polling station officials has established in articles 85, 86 and 87 of the aforementioned law can be achieved.

As president, in order to achieve this collaborative and/or teamwork with the polling station officials, it is necessary to set an example of proper integration with all the polling station officials, which is why we can mention the existence of a process of integration of the other FMDC (polling station officials). And it became the following process:

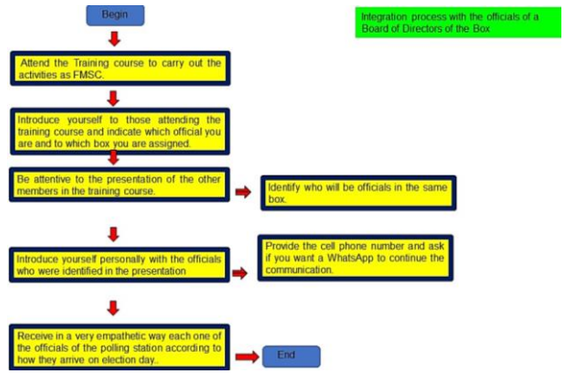

Figure 1
Source: Own elaboration

Discussion

The presiding officer has to carry out a series of activities that lead to the shaping of the polling station process in order to conduct a smooth Election Day using information technology media.

Conclusions

With the present investigation, a process of activities was carried out, which indicates that in the event of any circumstance on Election Day, there are polling station officials to avoid setbacks.

The National Electoral Institute has information technologies that are used on Election Days.

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Article **ECORFAN Journal-Spain**
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Marketing plan: household products cleaning company, in Villahermosa Tabasco

Plan de mercadotecnia: empresa de limpieza de productos del hogar, en Villahermosa Tabasco

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Abstract

Aim: To analyze the different variables that affect the development of the household cleaning products company, in order to obtain the positioning in relation to the other competitors, to achieve a 30% market share and to move to the growth stage to achieve profits.

Methodology used: SWOT analysis, considering the marketing variables (product, price, advertising, location), for the design of the model of the current situation of the company, obtaining an overall diagnosis and objective identification of the guidelines to be followed, generating market segmentation strategies that will achieve the main objective of the household cleaning products company in Villahermosa, Tabasco.

Contribute: Identified opportunities for strategic alliances, including service providers and a significant number of potential customers, overworked population needing cleaning assistance, companies identified as competitors lacking adequate technology and unprofessional service.

SWOT, Marketing, Variables

Resumen

Objetivo: Analizar las diferentes variables que impactan en el desarrollo de la empresa de limpieza de productos del hogar, para obtener el posicionamiento con respecto a los demás competidores es decir tener el 30% de participación del mercado y pasar a la etapa de crecimiento, logrando ganancias y utilidades.

Metodología: Se realiza un análisis FODA, considerando las variables de marketing (producto, precio, promoción, plaza), para el diseño de un modelo de la situación actual de la empresa, obteniendo un diagnóstico general e identificando de manera objetiva las directrices a seguir, generando estrategias de segmentación de mercado que permitirán lograr el objetivo principal de la Empresa de limpieza de productos del hogar, en Villahermosa Tabasco.

Contribución: Se detectaron oportunidades para hacer alianzas estratégicas, las cuales incluyen proveedores de servicios y un número considerable de clientes potenciales, se identificó que las poblaciones con exceso de actividades laborales requieren asistencia con los servicios de limpieza, las compañías que se detectaron como competidores no cuentan con la tecnología adecuada y su servicio no es profesional.

FODA, Mercadotecnia, Variables

Citation: GARCIA-JERÓNIMO, Irma, MOREJÓN-SÁNCHEZ, Juana María, GARCÍA-JERÓNIMO, Beatriz and NOTARIO-PRIEGO, Ezequiel. Marketing plan: household products cleaning company, in Villahermosa Tabasco. ECORFAN Journal-Spain. 2023. 10-18:5-12.

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Introduction

Above any market objective will be the mission of a company, its definition will be given by the top management, which will have to indicate what the objectives of the organisation are, that is, what business we are in and what markets we should target. This is the general framework in which we worked for the elaboration of the marketing plan, so an analysis of the current situation was made and some characteristics of the market were found.

Cleaning and disinfection processes have taken on a leading role in recent months, due to the global pandemic caused by COVID-19, being one of the main preventive measures recommended by the main international health organisations for the prevention of contagion.

To correctly apply preventive cleaning and disinfection protocols and thus guarantee maximum effectiveness, it is important to know the differences that exist between the concepts of cleaning, disinfection and other terms widely used in the market, such as sanitisation. At present, we find ourselves with a company that covers a medium level of the market and that according to data provided in the Tabasco Business Sector Classification (Dr. Juan José Chablé Sangeado and student Lucy Guadalupe Villamil Arcos) has surpassed the figure of 44,243 companies.

Most of them are micro-enterprises (without employees) and small enterprises (with less than ten employees); these positions us as a medium-sized enterprise.

The Mexican and European cleaning market is in a growth phase. This can be explained by the progressive outsourcing of this type of services, both in private companies and public entities.

The cleaning sector is primarily characterised by a cyclical component, i.e. it evolves in parallel to economic movements; in times of economic prosperity, there is a greater proliferation of companies that demand cleaning services.

It can be said that the portfolio of clients of this cleaning company of household products in Villahermosa Tabasco, is medium as it is composed of individuals, housewives, staff for cleaning their furniture and / or cars, furniture or equipment in their homes, as well as companies (hospitals, hotels, residential homes) who choose to outsource the service for a set time in the medium or long term, this being a great advantage to meet the constant demands.

This cleaning company of household products, in Villahermosa Tabasco, is an international company of German technology, which focuses on integral hygiene solutions such as the elimination of mites, bacteria, viruses and fungus spores, both in homes as well as hotels, hospitals, educational and recreational centres. All of the above with the aim of preventing diseases and improving people's health. Apart from the health issue, it provides excellent solutions for the aesthetic aspect, removing stains from upholstered furniture, carpets, car upholstery and leather furniture.

It also has electrostatic technology for environmental disinfection, eliminating all types of bacteria and viruses on surfaces for a long time and reliably. In this cleaning company of household products, in Villahermosa Tabasco, they are continuously dedicated to the search, development and implementation of new cutting-edge technology to be always at the forefront in cleaning applications and solutions.

According to the results of the investigation, a market of potential customers was found, as part of the changes generated as a result of the pandemic, the need was created in society, to ensure a safe, hygienic and reliable environment in the aspect of health, thus creating the need for disinfection and sanitisation of the home (furniture, bedrooms, vehicles, home accessories among others) and offices.

The marketing plan for a household products cleaning company in Villahermosa Tabasco, arises as a response to the need to identify the variables that are impacting this sector, analyse through SWOT all the key points that have positioned the company, measure itself with the competition and clarify the elements that strengthen it, the opportunities to grow in the market, the weaknesses that need to be worked on and the threats that must be attacked or eradicated as mentioned by Morejón J. (2017) in Marketing notes, to finally with the results of the study, propose a strategy that allows to achieve the main objective of obtaining the positioning with respect to the other competitors i.e. to have 30% market share and move to the growth stage, achieving profits and profits and that is also aligned to the mission of achieving customer satisfaction, covering their needs for cleaning and disinfection with the best quality, always with the care of the environment and the health of users.

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Methodology

An analysis of the current situation of the company was carried out in order to objectively identify the guidelines to be followed and the line to be followed by the organisation in order to achieve the objectives and goals set. For this purpose, we used the SWOT tool, which allows a general diagnosis of the current conditions in a structured manner.

Through an interview with the company's manager, we were able to identify the organisation's strengths and weaknesses.

Regarding the conditions that influence the business, they can be classified into internal and external, the internal ones can be the strengths and weaknesses and the external ones can be the opportunities and threats, these classify and identify the stage in which the business is. Regarding the external conditions we can also talk about the social groups that surround the business: its market, such as geographical and cultural conditions.

Strengths	Opportunities
F1 State-of-the-art equipment and German technology. F2 It has its own vehicle. F3 Knowledge of consumers and their behaviour has developed loyalty links (hotels and residential). F4 Customer recommendation for good service. F5 Service experience. F6 Speed of service (hot and cold injection washing). F7 Strategic positioning with the location of the premises. F6 Being a franchise gives security and confidence. F8 Standardised processes are in place. F9 Own company premises. F10 Special discounts for companies with medium-and long-term contracts and concrete recommendations.	O1 Strategic alliances with service providers (Services not available such as: Pest extermination). O2 Population with excess of work activities that will require cleaning services. 03 Acquisition of new equipment through financing. O4 Lack of franchise competitors in the state of Tabasco.
Weaknesses	**Threats**
W1 Many people still do not identify it as a cleaning business with a new concept. W2 The promotion carried out is not enough, so it has not attracted new customers. W3 Lack of a marketing plan. W4 Competitors offer a better price than us.	T1 Emerging competitors offering the same service. T2 Inflation raises service costs for businesses. T3 Substitute products or services.

Table 1 SWOT analysis
Source: own contribution 2023

Results: marketing plan (strategy and actions)

The strategy used is the Functional Strategy (Marketing Mix); (Dynamism in the marketing mix and performance: evidence obtained in commercial companies. Revista Perspectiva Empresarial 2014), since the marketing tools that will have a concrete impact on the objectives are selected, hoping for effective and adequate results. The main areas on which the marketing mix works are:

Product: This deals with the breadth of the range, modification and creation of products, brand policy and/or creation of the brand image; in this case it works on the image of the brand in the market.

Distribution (Place): This refers to the configuration and character, sales system, location of sales outlets; this marketing plan deals with the issues of sales systems and location of sales outlets.

Price: In terms of pricing strategy and discount policy, only discount policies are addressed.

Promotion: Internal and external communication and media are considered here.

It was considered to use the functional strategy of Marketing Mix, alluding to the 4Ps (Product, Place, Price and Advertising), establishing deadlines to achieve an increase in the demand for services, so that particular actions have been considered to achieve the objective and in turn the goal:

Goal: It is expected to achieve a 30% increase in customer demand, with short-, medium- and long-term action plans for 2023.

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Short Term Strategies: Strategies are proposed for Place and Publicity.

Medium Term Strategies: Place, Price and Advertising strategies are proposed.

Long Term Strategies: Place, Price and Advertising strategies are proposed.

The proposed strategies are the result of the SWOT analysis made to the cleaning company of household products, in Villahermosa Tabasco, it is observed that the strengths of this company are the points of greatest impact for the same, having cutting-edge equipment and German technology, being a franchise that provides security and confidence, experience in service, speed (washing hot and cold injection), good location, have their own vehicle, customer recommendation for good service, but above all knowledge of the consumer and their behavior, has developed links of loyalty (hotels and residential).

Just as the strengths were detected, opportunities were also identified that will allow the achievement of the objective and goal; therefore, opportunities for strategic alliances with service providers were identified (services that are not available such as pest extermination), many potential customers were detected as there is a population with excessive work activities that will require cleaning services and there are no competitors with the same quality of service and do not have the technology used for the development of services.

In terms of weaknesses, some weaknesses were identified that are closely linked to a marketing plan and it is here where it is proposed to establish strategies and actions to turn them into strengths; Such is the case that many people still do not identify the company as a cleaning business with a new concept, the promotions offered are not enough (restriction of the franchise) so it has not attracted new customers, however, strategic alliances can be established to offer other promotions and impacting in another way without violating the policies of the franchise, it does not have a marketing plan, only works empirically.

With respect to threats, some were detected that are not controlled by the company, such as emerging competitors that offer the same service at lower cost using low quality products and with undesirable results, another important point to consider is inflation, if this rises, the services in the cleaning company of household products in Villahermosa Tabasco also rise and there would not be as much demand as expected.

The above has been determined thanks to the interview conducted with the administrator and his staff, this has allowed to know the company more closely and to establish together a plan of action in determined times that are more convenient for the company.

Target market

Hotels and residential houses.

It is aimed primarily at each and every one of the people who have the need for cleaning and disinfection of any furniture, equipment, office, any space home, hotels, restaurants, machines, cars, chairs, dining room carpets, floors, sanitization of spaces, among others; this can be personal-individual or through contracts for a permanent service through medium and long term contracts.

Positioning

As for the type of positioning for which we sought to position ourselves is for quality and cutting-edge technology, as well as speed of service (service time). We will stand out as a business that will offer its services with quality, warmth and confidence, as it uses German technology that allows through standardised processes, to carry out the work in less response time and with the confidence of hygiene and quality; the price is competitive, although the real difference lies in the results of the service, it is less time in which they can use their equipment or furniture with the confidence of cleanliness and quality.

Competitors offer some services, but do not have the technology for dry cleaning, hot steam and vacuuming with disinfection, i.e. competitors require It can take up to 8 to 10 hours to deliver a job, sunning furniture or mattresses, carpets and so on, so that the customer can use them. Some competitors do not offer significant competition, as their prices are very high.

Distribution

For the distribution of the service, 6 operative workers are required since the service is at home, for the services to the clients on the floor, there is one person and a secretary. A direct relationship with the clients will also be maintained in order to measure the quality of the service offered.

ISSN: 2444-3204

Products (Services)

The services that are being offered are mattress washing, disinfection and washing of living rooms and armchairs, washing of clothes, ceilings and carpets of vehicles, washing and disinfection of sofa beds, cots, prams and baby chairs; all with home service in addition to using ultraviolet light and washing with injection and suction machine.

Tangible characteristics: We have state-of-the-art equipment for the different services.

Services	Description
Mattress washing	A double washing process is carried out after disinfection to avoid unpleasant odours and also to avoid diseases caused by mites and bacteria. For this process, an injection/suction machine is used, which has a water heater that raises the temperature to 70 degrees centigrade, making it easier to remove stains from textiles. This process avoids prolonged carving so as not to damage or shorten the life of the textile to be treated.
Upholstery, carpet and car upholstery washing	To meet other cleaning needs, an injection/extraction machine is used, it is the most advanced in its field and has hot water injection and a double suction motor, the heat improves the cleaning results, reduces the washing times and above all the drying times. Unlike the competition it implements dry cleaning before starting the washing process. This ensures that no bacteria, viruses or fungal spores remain inside the furniture because the application of moisture on an internal contamination acts as an accelerator that causes further contamination with all its consequences for health. The furniture subjected to the double washing process in the cleaning company of household products, in villahermosa tabasco drying in less than 6 hours, are free of all internal contamination, free of stains and odours. At the end aler combat spray is applied to avoid new proliferation of contaminants and to leave our pleasant fresh citrus scent.

Table 2 Description of services
Source: Own contribution, 2023

These services focus on integral hygiene solutions such as the elimination of mites, bacteria, viruses and fungal spores, both in homes as well as in hotels, hospitals, educational and recreational centres. All of the above with the aim of preventing diseases and improving people's health.

Apart from the health issue, it provides excellent solutions for the aesthetic aspect, removing stains from upholstered furniture, carpets, car upholstery and leather furniture. It also has electrostatic technology for environmental disinfection, eliminating all types of bacteria and viruses on surfaces for a long time and reliably.

Intangible characteristics: The service to be offered will be of good quality since the relationship with the clients will be direct, for this it will be necessary to train the operators and secretary.

Cleaning and disinfection service	Unit cost (current) ($)	No. Services historical (2022)	Revenue from services (short term) ($)	Projected demand for services per year (30%)	Projected income for the year ($)
Single mattress	500.00	50	25,000.00	65	32,500.00
Double mattress	600.00	55	33,000.00	72	43,200.00
Queen mattress	650.00	60	39,000.00	78	50,700.00
King size mattress	700.00	75	52,500.00	98	68,600.00
Car garment washing	900.00	50	45,000.00	65	58,500.00
Truck garment washing	1,000.00	35	35,000.00	46	46,000.00
Small carpet	600.00	65	39,000.00	85	51,000.00
Medium carpet	750.00	85	63,750.00	111	83,250.00
Large carpet	1,200.00	100	120,000.00	130	156,000.00
Small room	800.00	32	25,600.00	42	33,600.00
Medium room	900.00	60	54,000.00	78	70,200.00
Large room	1,000.00	71	71,000.00	92	92,000.00
		738	602,850.00	962	785,550.00

Table 3 Projected demand for services at 30% per year and fixed unit cost of services as it is set by the franchise.
Source: Own contribution, 2023

Prices

They were established taking into account that this project is a franchise project and are already indicated by a policy of the franchise, however, prices can be proposed according to the movement of competition in the immediate geographical context.

Plaza

Household products cleaning company in Villahermosa Tabasco has a physical space for customer service, by the type of services required mobilization to residences or places where they are different furniture to which the service will be performed, therefore it is not necessary to invest or publicize the facilities where the administration is carried out, however, to attract more customers or to reach them and stay in the minds of customers, it is necessary to work in different social networks such as designing and feeding the website, Facebook, Instagram, among others.

ISSN: 2444-3204

It is important to mention that to feed the social networks you must have a philosophy in the organization, although it is a franchise and has the organizational philosophy of the parent company, it is important to define and establish a philosophy according to the needs of the region, therefore, this will be developed during the process of this marketing project, as a plus for the cleaning company of household products, in Villahermosa Tabasco. We will also invest in hiring influencers, a medium that is currently having an impact on society, as they can demonstrate through their characteristic participations, the good service we are offering.

Promotion

We will use flyers, advertisements, among other media such as social networks, as well as some visible media such as tarpaulins, in order to increase customers, as well as what we offer.

- Tarpaulins: Printing of an advertising tarpaulin every 6 months, in order to update the services that have higher demand and adjustment of promotions.
- Flyers: Every 6 months print flyers with special promotions.
- Radio: Advertising spots every so often.
- Social networks: Website, Facebook, Instagram, among others.
- Influencers: The strategy of hiring influencers is established, as it is a medium that is currently having an impact on society, as they can demonstrate through their characteristic participation, the good service offered.

Action plans

Product - service strategy

Services designed for special events with promotions according to the client, for example, Hotels, Restaurants (In the cleaning of 2 mattresses, the third one is free, no matter the size, in the cleaning of a living room set, the medium carpet is free, among others).

Plaza strategy

Creation of a web page that is not part of the franchise contract, where they can make themselves known as a company, so that customers can place their orders from the same page.

Introduce a section where customers can share their experiences and freely offer suggestions to improve the services offered. Satisfaction survey proposal

Pricing strategy

Strategic alliances with franchises offering the same service, to establish competitive prices and/or services with special promotions. Establish competitive prices through alliances promoted through influencer channels.

Advertising strategy

Creation of a Facebook page with its own name (without violating the policies of the franchise) where customers can see the various services offered and where customers can share their experiences.

Hiring of Influencers to have more customers through social networks.

Flyers every 6 months with special promotions.

ACTIVITIES	SUB ACTIVITIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Design and develop a website outside the franchise agreement that represents you as a business and allows customers to order from you.	Select website design, platform, and digital content, including company philosophy, ways to engage with clients, and offers and campaigns.												
Create a branded Facebook page (within franchise guidelines) where customers can view the services offered and share their experiences.	Choose what to post, what photos to upload to the site, and what content to use to interact with clients.												
To attract more followers and direct interest in the service, continue to hire influencers on a regular basis.	Reviewing requests and following up with customers during content publication and after, communicating with these customers between contract periods to re-offer services.												
Set up an area where customers can share their experiences and freely make suggestions for improvements to the service.	Customer feedback forum												

Figure 1 Action plan
Source: Own contribution, 2023

Financial projection

Financial objectives:

Perform 962 Services in the state of Tabasco, for a profit of $785,550.00, one year.

Short Term: Perform 192 varied services (As shown in table No. 4) and make a profit of $155,100.00 pesos, two months.

Medium Term: Perform 323 varied services (As shown in table No. 4) and make a profit of $266,850.00 pesos, four months.

Long Term: Perform 447 varied services (As shown in table No. 4) and earn a profit of $363,600.00 pesos, six months.

ISSN: 2444-3204

CLEANING AND SANITIZING SERVICE	UNIT COST (CURRENT))	AMOUNT OF SERVICES (January-April)	SERVICE REVENUE (Short Term)	AMOUNT OF SERVICES (May-August)	SERVICE REVENUE (Medium Term)	AMOUNT OF SERVICES (September-December)	SERVICE REVENUE (Long Term)
Single mattress	$500.00	15	$ 7,500.00	23	$ 11,500.00	27	$13,500.00
Double mattress	$600.00	15	$ 9,000.00	25	$ 15,000.00	32	$19,200.00
Queen mattress	$650.00	15	$ 9,750.00	25	$ 16,250.00	38	$24,700.00
King Size Mattress	$700.00	20	$ 14,000.00	28	$ 19,600.00	50	$35,000.00
Car Garment Washing	$900.00	10	$ 9,000.00	20	$ 18,000.00	35	$31,500.00
Truck Garment Washing	$1,000.00	5	$ 5,000.00	15	$ 15,000.00	26	$26,000.00
Small Rug	$600.00	20	$ 12,000.00	25	$ 15,000.00	40	$24,000.00
Medium Rug	$750.00	25	$ 18,750.00	40	$ 30,000.00	46	$34,500.00
Large Rug	$1,200.00	30	$ 36,000.00	50	$ 60,000.00	50	$60,000.00
Small Room	$800.00	7	$ 5,600.00	15	$ 12,000.00	20	$16,000.00
Medium Rom	$900.00	15	$ 13,500.00	25	$ 22,500.00	38	$34,200.00
Large Room	$1,000.00	15	$ 15,000.00	32	$ 32,000.00	45	$45,000.00
OVERALL AMOUNT		192	$ 155,100.00	323	$ 266,850.00	447	$363,600.00

Figure 2 Short, medium and long-term financial targets
Source: Own elaboration, 2023

Marketing (Product Life Cycle). The life cycle of the service that is being offered to the market is of new introduction in terms of technology, since the possible consumers of these services barely know it and they will highlight the degree of impact that it will have on the other clients. Based on this, strategies will be sought to make each of the services better known and increase the number of consumers (clients), through which it will be possible to cover and corner the market.

Controls. The company has a database where it registers and controls the demand for services and new clients. It also has a record of equipment maintenance, a programme of services for frequent residential and hotel customers and individual services, as well as control of the supplies used to carry out the services and the stock.

The short, medium and long term projection of services requires control, therefore, it is proposed to measure by quarterly periods:

- Number of demand for services between the number of services carried out: In order to know if the projection is really being fulfilled and if not, to establish strategies to ensure greater demand.

- Number of services requested between type of service: To find out which are the most requested services in order to establish sales strategies, alliances, promotions, advertising, among others.

- Customer satisfaction survey: Openness to feedback, capturing customer perception and new ideas for improvements for the company, as mentioned by Eliseo Dantes H. in his book Apuntes de Creatividad e Innovación en las organizaciones 2016.

Budgets

In the cleaning company of household products, in Villahermosa Tabasco different investments are considered for the development of the different functions during a year, in this section we will find investment projections for a year, stationery and office equipment, advertising media to make themselves known reaching more customers.

Article	Quantity	Unit Price ($)	Total ($)
White sheets	1 package c/500	120.00	120.00
Cardboard	10	12.00	120.00
Markers	1 package c/5	30.00	30.00
Pens	1 box with 30 pz.	25.00	25.00

Table 4 Projected investment per year and unit cost of stationery and office supplies
Source: Own elaboration, 2023

Medio	Unit price	Can.	Total cost	Size	Description
Website and social networks	3,000.00	2	6,000.00	N/A	Customise the website and open social networks
Influencers	800.00**	2	1,600.00	N/A	**Offer the service in exchange for a recommendation to increase recruitment.
Radio spot	1,000.00	2	2,000.00	1 min	Services, costs and promotions
Advertising banner	$700.00	2	$1,400.00	2m * 1.50 m	Plastic or vinyl
Flyers	.20	1000	$400.00	¼ carta	Orange ink with white.
TOTAL:			$11,400.00		

Table 5 Advertising media plan every 6 months with yearly cumulative
Source: Own elaboration, 2023

Based on the data provided, the income statement with a one-year projection is made, it is worth mentioning that we have worked with real information that was provided by the administrator, in the same way, other data could not be considered as they were reserved for security reasons.

Concepts	Ene-abr/23	May-ago/23	Sep-dic/23	Accumulated per year
(+) SALES (30% P.A.)	$ 155,100.00	$ 266,850.00	$ 363,600.00	$ 785,550.00
FIXED COSTS (30%)	55,836.00	96,066.00	130,896.00	$ 282,798.00
VARIABLE COSTS (20%)	31,020.00	53,370.00	72,720.00	$ 157,110.00
(-) TOTAL COSTS (10%)	15,510.00	26,685.00	36,360.00	$ 78,555.00
(=) GROSS PROFIT	52,734.00	90,729.00	123,624.00	$ 267,087.00
(-) DEPRECIATION (10%)	5,273.40	9,072.90	12,362.40	$ 26,708.70
(=) PROFIT BEFORE TAX	47,460.60	81,656.10	111,261.60	$ 240,378.30
ISR				
IETU				
(-) TAXES				
(=) PROFIT FOR THE YEAR	47,460.60	81,656.10	111,261.60	$ 240,378.30

Table 6 One-year projected income statement
Source: Own elaboration, 2023

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Conclusions

After having carried out the marketing plan, it is concluded that the cleaning company of household products in Villahermosa Tabasco faces several competitors that offer a similar service, however it is highlighted that the cleaning company of household products in Villahermosa Tabasco has a great competitive advantage that differentiates it from its competitors, Being an international company with German technology, it focuses on integral solutions, that is to say, it is not only the cleaning of furniture, they are concerned about hygiene such as the elimination of mites, bacteria, viruses and fungus spores, that is to say, they provide a quality service with a plus in the aesthetic issue, removing stains on upholstered furniture, carpets, car upholstery and leather furniture.

The economic impact has been positive and is increasing for the managers of the household products cleaning company in Villahermosa Tabasco, who currently have two more franchises, one in a municipality in the state of Tabasco and another in Palenque Chiapas. The company does not have promotions and advertising with great presence in the State of Tabasco, understanding that it is due to the policies of the same franchise; although it is also understood that other strategies can be established that add to the recommendations of their loyal customers, such is the case of special seasonal promotions according to the results of the measurement of demand, presence in business events in the state of Tabasco, presence in the Tabasco fair, advertising spots, flyers, recommendations of influencers among others.

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Level of burnout syndrome in teachers of the Tecnológico Nacional de México campus Villahermosa in times of COVID-19

Nivel del síndrome del burnout en docentes del Tecnológico Nacional de México campus Villahermosa en tiempos de COVID-19

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Abstract

This research was carried out to determine the level of burnout syndrome in teachers of the Instituto Tecnologico de Villahermosa, showing the level of stress generated by the COVID-19 pandemic during virtual classes. The level of impact of the COVID-19 pandemic on mental, physical and emotional health will be analyzed using a qualitative-quantitative, exploratory and descriptive approach, as well as the method of situational analysis supported by the Maslach Burnout Inventory (MBI) questionnaire. This analysis will contribute to the reflection of the consequences of developing a high level of stress. The type of sampling was simple random, where it was guaranteed that all sample elements have a priori the same probability of being selected to be part of the sample; the total population for the study corresponds to 245 teachers, performing the calculation of the sample a confidence level of 95% and a margin of error of 6% was obtained, obtaining a total of 128 teachers as a sample. The following results were obtained for each subscale: emotional exhaustion with 56%, physical exhaustion with 57% and psychological or mental exhaustion with 69%.

Pandemic, Burnout, Focus

Resumen

Esta investigación se llevó a cabo para determinar el nivel del síndrome de burnout en los docentes del Instituto Tecnológico de Villahermosa, donde se muestra el nivel de estrés que generó la pandemia COVID-19 durante las clases virtuales. Se analizó el nivel de impacto de la pandemia COVID-19, en la salud mental, físico y emocional, utilizando una metodología bajo el enfoque, cuali-cuantitativo, de tipo exploratorio y descriptivo, así como el método de análisis situacional apoyado del cuestionario Maslach Burnout Inventory (MBI). Este análisis contribuirá en la reflexión de las consecuencias que trae consigo desarrollar el alto nivel de estrés. El tipo de muestreo fue aleatorio simple, donde se garantizó que todos los elementos muestrales tienen a priori la misma probabilidad de ser seleccionados para pasar a formar parte de la muestra; La población total para el estudio corresponde a 245 docentes, realizando el cálculo de la muestra, se obtuvo un nivel de confianza del 95% y un margen de error del 6%, obteniendo un total de 128 docentes como muestra. Se obtuvo el siguiente resultado por cada subescala: agotamiento emocional con un 56% agotamiento físico con un 57% y psicológico o mental con un 69%.

Pandemia, Agotamiento, Enfoque

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Introduction

Burnout syndrome (BS), also known as burnout syndrome, is a mental health problem that can develop when an individual experiences high levels of stress and burnout at work. This syndrome can affect people in a wide variety of professions, including teachers. In the context of the COVID-19 pandemic, teachers at the Instituto Tecnológico de Villahermosa have experienced a number of unique challenges that can increase the risk of developing Burnout syndrome. For example, many of them have had to adapt quickly to online teaching, handling technological tools and digital platforms, which can require a lot of extra work and rapid learning of new technologies. The pandemic has increased the overall stress level in society, which can make it even more difficult for teachers to maintain their emotional balance.

At the Tecnológico Nacional de México Campus Villahermosa, it is important to understand the level of Burnout syndrome in teachers in times of COVID-19. By conducting research to assess the level of Burnout syndrome in the teachers of this campus, valuable information can be obtained about the state of health of teachers and the challenges they faced in their work in times of Covid-19, this analysis will allow the institution to identify the level of burnout, consequences that it generated in the physical, mental, psychological health of the teaching population, with the result obtained will guide us to design intervention strategies to support the teacher. In this document, we will explore the level of burnout syndrome in the teachers of the Tecnológico Nacional de México Campus Villahermosa during COVID-19.

The purpose of this analysis is to contribute to the reflection on the consequences of the high level of stress generated by the COVID-19 pandemic; it will allow us to understand the attitudes of the teachers in their performance in front of the group, their dealings with students, co-workers and the impact it has on the institution.

This article is integrated by the theoretical framework; where the theories and concepts that will allow to expand the knowledge about the level of burnout syndrome in teachers during Covid-19 will be known, it can be based on several existing theories and models related to burnout, stress and coping.

Research method

Investigating Burnout Syndrome in teachers of the Tecnológico Nacional de México Campus Villahermosa in times of COVID-19, requires a rigorous and systematic approach. What is intended is to present general guidelines of the materials and methods that could be used for the research: Results, discussion and recommendations:

This section shows the results obtained with respect to the level of Burnout generated by the Covid-19 in the teachers of the Instituto Tecnológico de Villahermosa, during their academic performance; subsequently, the relevant recommendations are determined.

Theoretical framework

Hamad and Azeez (2023) indicate that the effects of the coronavirus pandemic on mental health, such as stress, fatigue, ill health and mental disorders, have received much attention from academics. (Daumiller et al., 2021) analysed the transition from traditional classroom instruction to online instruction.

In many countries, including Iraq, synchronous and asynchronous e-learning models have been combined. As a consequence of this situation, a large number of educators have been forced to modify their instructional practices in a short space of time, as well as to further develop their educational and technological competencies, and to assume more frequently the role of learning manager.

This resulted in teachers experiencing stress, leading to the development of fatigue syndrome and feelings of isolation, which negatively impacted on teachers' overall performance.

Martinez and Yeomans (2023) Online teaching is not new, the transition from a face-to-face to a remote learning process due to a pandemic such as COVID-19 is an element that needs to be studied due to the possible repercussions on both teachers and students.

It has been documented that online learning has some problems and virtues.

Some studies indicate that university students are a high-risk group for mental health problems.

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According to Morales and Bustamante (2021), the pandemic accelerated the process of unlearning to learn, leaving very high costs, many families disintegrated when a family member died, and the incidence of abuse and violence increased. The lack of devices became an obstacle expelling some teachers and students from education, leaving as evidence that social isolation is also digital, despite the fact that technology is the solution to continue with education. (p.8)

Teaching strategies in pandemic

Morales and Bustamante (2021), in the application of this form of virtual teaching, teachers were faced with new technological tools and adapt new strategies to achieve the objective of the programme, it was the first time that the teaching staff had the need to teach online and in any other way, turning the virtual classroom into a mobile classroom, some had knowledge in the management of these technological tools and others the one but not the other; The virtual classroom is a mobile classroom, some had knowledge of these technological tools and some had knowledge of one but not the other, such as Classroom, Zoom, Edmodo, Moodle and digital audio/video resources such as Google Meet and even WhatsApp; at this early stage these are the most commonly used digital support methods. Virtualisation replaces the classroom; based on the topics to be addressed, teachers managed learning by using slides to make the relationship with knowledge didactic, making the virtual classroom attractive. The situation we lived through forced us to learn and improve as we went along, readapting ourselves to this way of teaching and learning. (p.9).

The simple fact of depending on a computer makes us be on alert, observing the panorama and being participants in the path towards the adaptation of this new normality; this gap is great and has to be redirected according to the course -leaving fear behind- to convert it into effective learning environments, above all, affective, where the educational contexts allow us to be included in this digital society of the great spheres of hegemony. (p.10).

Maintaining interest in virtual classes

Morales and Bustamante (2021), Education in pandemic is a challenge for teachers and students accustomed to a face-to-face modality, due to the application of new strategies and the havoc caused in the emotions that hit us all in a boomerang effect.

Teachers as well as students live a deep desire for transformation, which brings us closer to an effective and strengthened educational system, students, in our experience, express that online classes need a different spark to maintain enthusiasm in virtual sessions, demanding methodologies on our part, including in this area the need to use audiovisual resources, which forces us to reinvent ourselves and be part of the new digital skills that this hyperdigitalised world throws at us to be competent, those who try to survive in contingency; but in addition to the lack of experience in working online, we are faced with other major problems: the excessive workload and the stress of performing daily tasks as a permanent connectivity that has made life at home different. When and where do we take care of the family, when and where are they connected? (P.10)

Souza, Carballo, and Lucca (2023) point out in a study of teachers in Primary Education, especially in public schools, often go through physical and emotional suffering due to infrastructure problems and psychosocial factors at work that are related to high work demands, lack of autonomy, poor quality relationships and violence. These factors contributed to the development of SB.

It was possible to show that the most committed teachers, with low resilience and self-esteem, and who presented symptoms of anxiety and depression were at greater risk of BS, although it was not possible to establish a causal link produced by the cross-sectional patterns of the selected studies. Regarding socio-demographic factors, the most relevant factor evidenced by the studies refers to gender. Women proved to be more susceptible to burnout. Other factors (age, marital status, length of time in the profession) presented varied results, and it was not possible to draw a scenario.

Teachers' emotional intelligence as a protective factor

Geraci et. al, (2023). In recent studies, scientific research has focused on the Emotional Intelligence (EI) of teachers, because teaching is a highly emotional profession, and EI can be a crucial factor.

ISSN: 2444-3204

Self-report scales have also been designed on the EI-ability model, which excludes traits or competencies related to emotions and shows a weak association with personality dimensions, unlike a test of peak performance, which measures actual abilities, self-report EI-ability scales measure individuals' perceptions of their own emotional abilities, i.e., self-reported EI or Perceived EI (PEI). Performance-based and self-report measures of EI show minimal convergent validity, suggesting that these two different measurement methods " are most likely tapping into different mental processes.

EI is a psychological factor that could help buffer the effect of psychological distress. Before the pandemic, some studies already showed that EI and EI are positively associated with work engagement and self-efficacy and negatively associated with burnout. However, from a recent systematic review, it became evident that most studies assessed the relationship between teachers' EIP and burnout, while only one study used MSCEIT to measure EI. Similarly, four studies conducted during the pandemic showed that teachers with higher levels of EIP had lower levels of burnout. To our knowledge, no study investigated the role of EI in teachers' ability to cope with adversity during the COVID-19 pandemic. Therefore, this study represents the first to employ both performance and self-report measures to assess PEI and EI. (pp. 2-3)

The new modality: virtual classes

Cortés (2021), The psychological and social impact of this pandemic is indisputable. The incorporation of the new teaching modality generated radical changes in educational interaction. Both teachers and students adapted the new classrooms at home. Some struggled because they did not have the technological resources to fulfil their purpose. Some teachers were overcome with a feeling of helplessness when they heard their students say that they were unable to access the virtual classes because they lacked the means to continue their studies.

To avoid drop-outs, some teachers demonstrated their professionalism and looked for ways to support those who showed a need. They looked for ways to get students to comply with the programme and complete the period.

A very commendable task implemented by the teachers was the doubling of working hours, which included adapting the contents of their classroom subjects to emergency remote learning, the prolonged use of virtual platforms, the assignment of tasks, the way of evaluating them and the delivery of results; all these aspects that influenced the success of the assignment resulted in an exhausting task for the whole teaching staff, the physical and emotional wear and tear was greater, which generates a mental state that brings with it high psychological and emotional consequences.

Triggering factors of stress in teaching in times of pandemic

Cortés (2021), The trigger for work-related stress in teachers in times of Covid-19 is due to several factors. One of them is the modification of the activities they usually performed, because the adaptation of their subjects to the virtual plane entails double the effort and exposes them to situations in which some teachers had to resolve technological situations. The use of new working tools with which they are not familiar resulted in exhausting working days due to the emerging changes.

Social confinement is another important factor, because it was implemented as a measure to safeguard the health of the university community. This resulted in the lack of student-teacher interaction that occurs in the face-to-face mode, which is an essential element for optimal learning; another usual activity that the teacher developed was the social interaction between co-workers.

Coexistence between human beings is necessary to generate healthy relationships that balance the assigned workload, so that social distancing is assimilated in a negative way, causing a decrease in psychological well-being and physical health. Within the adaptation process, there were other circumstances that hindered the emotional stability of the teachers. Uncertainty and fear were highly negative elements, the incessant arrival of news where the outlook far from improving worsened, the concern for their health or that of a loved one were situations that placed the human being at risk of developing mental illnesses such as stress disorders, anxiety and depression (pp.5-6 and 9-10). (pp.5-6 and 9-10).

ISSN: 2444-3204

Theories and models of Burnout Syndrome

According to Gil-Monte and Peiró (1999, as cited in Bravo and Elizondo, 2022), there are various explanatory models of burnout syndrome, which allow us to establish the antecedents and consequences of the symptom, establishing the way in which individuals suffer the process, the models can be classified into four research groups, which are reviewed below: Models related to the socio-cognitive theory of the self.

In these models, cognitions assume a central role, because they influence the way reality is observed, and can be transformed in this process. In addition, these models argue that the emotional consequences of actions are determined by the individual's self-confidence.

The second group contains the models of social exchange theories, which propose that the syndrome is due to individuals' perceptions of unfairness in the establishment of interpersonal relationships.

The third group contains ideas from organisational theory, which are based on the role of stressors in the organisational context, characterised by variables such as role functions, structure, climate and organisational culture, in relation to coping with threatening situations.

The fourth group is related to aetiological models based on structural theory, which suggest that burnout can be explained by personal, interpersonal and organisational causes (pp.3-4). (pp.3-4).

Theoretical currents of burnout Burnout

López and Ortega (2004, cited in López, 2017). Ultimately, theoretical models relating to Burnout focus on answering the questions raised by feelings of burnout and, ultimately, articulating a theory appropriate to the aetiology of Burnout.

López and Ortega (2004, cited in López, 2017). Within each of the following theories, various explanatory models of Burnout are integrated. (Quinceno, 2012) Socio-cognitive Self Theory:

Harrison's Competition Model (1983) Pines' Model (1993) Cherniss Model (1993) Thompson, Page and Cooper's Self-Control Model (1993)

Social exchange theory

Buunk and Schaufeli's Social Comparison Model (1993) Hobfoll and Freedy's Conservation of Resources Model (1993))

Organisational theory

Golembiewski, Munzenrider and Carter model (1983) Cox, Kuk and Leiter model (1993) Winnubst model (1993)

Structural theory

Model of Gil-Monte, Peiró and Valcarcel (1995) Theory of Labour Demands and Resources Demerouti et al. (Demerouti et al., 2001) (p. 32-33).

Table 1 Theories and models

Material and methods

Antoniou et. al, (2023) Burnout syndrome can be described as a state of frustration and exhaustion that is usually caused by devotion to a specific cause or that appears when work stressors become long-term unresolved issues.

Investigating Burnout Syndrome in teachers at the Tecnológico Nacional de México Campus Villahermosa in times of COVID-19 requires a rigorous and systematic approach.

Below are some general outlines of the materials and methods that could be used for such an investigation:

Material

There are several validated scales and questionnaires that can be used to measure Burnout Syndrome; and for this research it was determined to use the test measurement tool according to Maslach and Jackson (1986), Maslach Burnout Inventory (MBI), the items were adapted to the needs required for the integration of the project information, this selected tool was reviewed and validated for use. Demographic and work information questionnaire: includes basic demographic information, such as: age, gender and years of teaching experience, as well as information on workload, work demands and resources available to cope with stress, the COVID-19 Impact Questionnaire: includes questions related to the impact of COVID-19 on teaching practices, workload, work demands and personal life.

ISSN: 2444-3204

Also, audio interviews were conducted where they recount following the Maslach Burnout Inventory (MBI) items.

Methods

The research was developed under the approach according to Sampieri et al. (2010), quali-quantitative, exploratory and descriptive type, as well as the method of situational analysis, (p. 4), and life history, supported by the questionnaire according to Maslach and Jackson (1986), Maslach Burnout Inventory (MBI), validated.

Sampling: 128 teachers from the Tecnológico Nacional de México Campus Villahermosa were selected using a random sampling technique.

Data collection: Data collection was carried out using the online survey platform, Microsoft Forms. Participants were informed about the purpose and nature of the study and were asked for consent to use their information; 11 audio interviews were also conducted; Data analysis: Descriptive statistics were used to summarise demographic and work-related information, as well as the impact of Covid-19. Ethical considerations: Ethical considerations were taken into account, including ensuring confidentiality and anonymity of participants, obtaining informed consent, and complying with ethical guidelines for conducting research with human subjects.

Results

The Maslach Burnout Inventory (MBI) instrument was used as a guide to measure Burnout Syndrome. This instrument was modified to fit the population under study, in this case for teachers at the Tecnológico Nacional de México Campus Villahermosa.

The instrument used has 25 items and the following subscales:

1. Emotional exhaustion with 8 items.

2. Physical exhaustion with 12 items.

3. Psychological or mental exhaustion with 5 items.

The type of sampling was simple random, where it was guaranteed that all sample elements have a priori the same probability of being selected to form part of the sample.

To calculate the sample, the population of 245 teachers was taken into account with a confidence level of 95% and a margin of error of 6%, the total sample of teachers who answered the questionnaire was 128 teachers.

To measure the reliability or consistency of the set of questions of the measuring instrument, Cronbach's Alpha coefficient was used, giving a result of 0.96 for the whole scale and for each subscale, which gave the following result:

Subscale	Reliability coefficient	Level of reliability
Emotional exhaustion	0.76	Excellent reliability
Physical exhaustion	0.91	Excellent reliability
Psychological or mental exhaustion	0.76	Excellent reliability
The study sample consisted of 128 teachers, 59% of whom were male and 41% female.		

Table 2 Frequency and percentage of ages. Results of the survey applied

Age range	Frequency	Percentage
18 a 30	6	5%
31 a 40	22	17%
41 a 50	32	25%
51 a 60	36	28%
61 a 70	25	19%
71 a 80	8	6%
More about 80	1	1%

Table 3 Frequency and percentage of ages. Results of the survey

The ages of the teachers range from 18 to over 80 years old.

Department of Attachment	Frequency	Percentage
Economic-Administrative Sciences	37	28%
Systems and Computing	14	11%
Earth Sciences	21	16%
Industrial Engineering	18	14%
Basic Sciences	19	15%
Chemical, Biochemical and Environmental Engineering	21	16%

Table 4 Frequency and percentage of teachers assigned to the Academic Departments. Results of the survey applied

The level of Burnout of the teachers is presented below, taking into account the subscale defined in the survey:

ISSN: 2444-3204

Subscale	Under	Medium	High
Emotional exhaustion	15%	28%	56%
Physical exhaustion	28%	15%	57%
Psychological or mental exhaustion	0%	31%	69%

Table 5 Level of Burnout of teachers by subscale, Result of the survey applied

The results provided show the level of teacher burnout according to the subscales of emotional exhaustion, physical exhaustion and psychological or mental exhaustion. Each subscale is divided into three categories: low, medium and high. The results will be discussed below:

Emotional exhaustion:

15% of the teachers show a low level of emotional exhaustion.

28% of the teachers show a medium level of emotional exhaustion.

56% of the teachers show a high level of emotional exhaustion.

These results indicate that more than half of the teachers experience a high level of emotional exhaustion, suggesting that they may be experiencing a high emotional burden and burnout in their work.

A) Physical exhaustion:

28% of teachers show a low level of physical exhaustion.

15% of the teachers show a medium level of physical exhaustion.

57% of the teachers show a high level of physical exhaustion.

These results reveal that more than half of the teachers experience a high level of physical exhaustion. This may indicate that they are experiencing physical fatigue and burnout due to the physical demands associated with their work.

B) Psychological or mental exhaustion:

No teachers are observed with a low level of psychological or mental exhaustion.

31% of the teachers show a medium level of psychological or mental exhaustion.

69% of teachers show a high level of psychological or mental burnout.

These results are particularly worrying because they indicate that the vast majority of teachers are experiencing a high level of psychological or mental exhaustion that can lead to burnout syndrome. This implies that they may be facing a significant emotional and cognitive burden in their work, which can have negative consequences on their well-being and performance.

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The institution collaborated with the relevant resources for the achievement of the goals, such as: collected information, furniture and computer equipment.

Conclusión

Overall, the results suggest that teachers are experiencing significant levels of burnout in all three subscales considered. Emotional exhaustion and psychological or mental exhaustion seem to be the most prominent aspects of burnout among teachers at the Technological Institute of Villahermosa.

These findings highlight the importance of addressing and planning prevention strategies to counteract burnout syndrome and improve the physical well-being and mental health of teachers.

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Current situation of the guava agrifood chain in Zacatecas, Mexico

Situación actual de la cadena agroalimentaria de guayaba en Zacatecas, México

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Abstract

Guava is one of the most important fruit crops in Zacatecas, Mexico. However, its permanence as an agrifood chain could be at risk. This research evaluated the current positioning of the guava chain. The information supporting these results was collected using the International Service for National Agricultural Research (ISNAR) methodology. The results indicated that guava is in a retraction status due to low socioeconomic importance and competitiveness. This situation is due to a significant decrease in the established area with guava, induced by various climatic, productive, and economic factors that growers have been experiencing. Therefore, it is necessary to improve crop productivity through the dissemination and adoption of technological innovations to improve yield.

***Psidium guajava* L., Positioning, Socioeconomic importance, Competitiveness**

Resumen

La guayaba es uno de los frutales más importantes en Zacatecas, México. Sin embargo, su permanencia como cadena agroalimentaria podría estar en riesgo. Esta investigación evaluó el posicionamiento actual de la cadena de guayaba. La información que sustenta los resultados se recabó utilizando la metodología del International Service for National Agricultural Research (ISNAR). Los resultados indicaron que la guayaba se ubica en una posición de retracción, donde su importancia socioeconómica y competitividad son bajas. Esta situación obedece a una disminución significativa de la superficie plantada con guayabo, inducida por diversos factores climáticos, productivos y económicos que los productores han estado experimentando. Por ende, es necesario mejorar la productividad del cultivo a través de la difusión y adopción de innovaciones tecnológicas para mejorar el rendimiento.

***Psidium guajava* L., Posicionamiento, Importancia socioeconómica, Competitividad**

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Introduction

Guava has a high nutraceutical potential due to its vitamin C, E, and D12 content, in addition to minerals such as iron, copper, calcium, magnesium, potassium, manganese, and phosphorus (Padilla *et al.*, 2014). It also contains high levels of essential amino acids such as tryptophan, lysine, methionine, and tannins (Chauca & Chávez, 2020; Rojas & Narváez, 2009; Marquina *et al.*, 2008). These characteristics make it one of the most appreciated fruits by consumers, in the face of a growing trend for nutraceutical and functional products (Coronado *et al.*, 2015; Sauceda *et al.*, 2011).

World guava production amounted to almost 261 million t in 2022. India was the leading producer with 51 % of total world production, followed by Indonesia (7.5 %), Mexico (4.9 %), and China (4.9 %) (Trigde, 2023). In 2022, Mexico had an established area of 22,546 ha that produced 321 thousand t of this fruit (SIAP, 2023a). This fruit is cultivated in tropical and subtropical regions of the country as a crop, in the wild, or in backyard orchards. However, the economically important producing areas are located in the states of Aguascalientes and Zacatecas, particularly in the region known as Calvillo-Cañones (Padilla *et al.*, 2007; Padilla *et al.*, 2014), which in 2022 had an established area of 7,450 ha and a yield of 115.7 thousand t (SIAP, 2023a).

Zacatecas is the third largest producer of this fruit (31 thousand t), which is grown in the municipalities of Apozol, Huanusco, Jalpa, Juchipila, Moyahua de Estrada, Nochistlán de Mejía, Tabasco and Villanueva. From 2017 to 2022, guava yield in this region had an average growth rate of -9.3%. However, the importance of this fruit chain was emphasized in the number of producers engaged in this activity (≈ 348) and the number of field man workers generated annually around this crop (≈ 309 thousand) (Ramos *et al.*, 2017; SIAP, 2023a).

However, research must anticipate the challenges and needs projected by a world immersed in constant change processes. The challenge of this activity is not only to modernize and make agricultural activity more efficient but also to improve income, welfare, and life quality in the rural sector. In the same way, a balance must be established in research activities oriented to productivity (sufficiency and efficiency) in close relation to nutritional quality, health, and food safety for the benefit of the consumers (Kaimowitz, 2019, Carrasco & Sapera, 2016).

In this regard, it is necessary to analyze the agrifood chains of a region or state, to direct efforts toward technological innovation in a coordinated manner with a high probability of economic, social, and environmental impact (Urquía, 2014). Therefore, this research aimed to determine the socioeconomic and competitive importance of the guava chain in the state of Zacatecas, México.

Materials and methods

The methodology consisted in ranking the guava chain in Zacatecas based on weighted criteria so that this agrifood chain could be positioned and compared with other agrifood chains through a dimensionless numerical matrix. Two dimensions were considered: a) The socioeconomic dimension (SED). This included those characteristics of the agrifood chains that make them essential attributes for considering them a justifiable productive activity. The competitiveness dimension (CD). This explains the ability of those involved in a productive chain to face the challenges of change and the ability to adapt and overcome them. Both dimensions are key aspects of the motivations, opportunities, weaknesses, and strengths that agricultural activities manage and explain the socio-economic activities of the primary production sector (Rincón *et al.*, 2004).

Both dimensions are made up of criteria logically integrated into standardized numerical values. The criteria for the SED were: size, dynamism, and specialization. The CD was made up of the criteria: productivity, sustainability, and commercial performance. In turn, each criterion was explained by quantitative parameters and thus explain, numerically, the advantages and/or opportunities implicit in each agrifood chain. A total of fourteen parameters were used, as described below (Rincón *et al.*, 2004).

The yield value was used as the first indicator of economic and social magnitude for the size parameter. The second indicator was the cultivated area used by each crop in the state. This indicator can show the social importance of each agrifood chain. Another indicator associated with the size criterion was the number of jobs generated, which has a strong social and economic weight.

ISSN: 2444-3204

The dynamism criterion was represented by three variables: yield value trend, real price evolution, and employment evolution. The three parameters can explain the socioeconomic impact of agrifood chains; because the dynamism criterion is an indicator of the ability to adapt to a continuous environment, but also of the agrifood chain's importance in providing jobs and maintaining competitive prices.

The specialization and concentration coefficients were used to refer to the level of specialization of an agrifood chain within the state (among agrifood chains) and national context. Both indicated the relative importance of the agrifood chains at the state and national levels.

The productivity criterion was represented by the return on capital (benefit/cost ratio) and labor productivity (total cost of wages/income). These indicators are an important part in defining the efficiency of each agrifood chain in making use of economic resources.

The sustainability generated by each agrifood chain was represented by the soil erosion levels, water use efficiency, and contamination levels by fertilizers, particularly due to high nitrogen applications, understanding nitrates as a source of soil and aquifers contamination.

The commercial performance criterion was represented by the trend of the real prices of the products.

The values of the variables of each criterion by dimension were added, and later, standardized to zero mean and standard deviation. With the latter, a dimensionless matrix for SCD and CD was generated. This was used to order each agrifood chain and position them in a two-dimensional plane to compare the guava chain with other agrifood chains.

Results and discussion

The integration of the agrifood chains information in a dimensionless matrix, for the period 2010-2021, allowed the formation of four agrifood chain groups according to the socioeconomic and competitive relevance of each one in the state of Zacatecas (Figure 1). The bean and apple chains were placed in Quadrant I of sustainability status. While the chains of peaches, carrots, and grapes were placed in Quadrant II of vulnerability status.

In contrast, tomato, green chili, cactus pear, lettuce, green tomato, guava, nopalitos, and onion were placed in a retraction status (Quadrant III); while in Quadrant IV, the garlic chain was positioned in a critical situation due to its great socioeconomic relevance but low competitiveness (Figure 1).

The guava chain was positioned in a retraction status (Figure 1, Quadrant III) due to its low competitiveness and socioeconomic relevance for Zacatecas state.

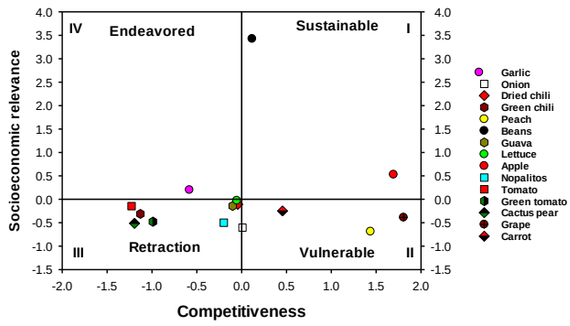

Figure 1 Positioning of agrifood chains in the State of Zacatecas for 2010-2021 period

This crop is transcendental on one hand, because it represents an alternative to using agroecological resources and, on the other hand, it is a source of savings and extraordinary capitalization for growers. The negative sign in the socioeconomic axis was due to a 58.6% reduction in the established area during the 2010-2021 period. In part, this has been due to the gradual depletion of aquifers and, therefore, to the increase in the costs of water extraction and irrigation supply. Besides, the orchards' devastation was due to recurrent temperature drops (Medina *et al.*, 2005) associated with other natural phenomena such as hailstorms and droughts, pests and diseases (Padilla *et al.*, 2007), the increase in production costs, as well as the poor planning in the public and private resources allocation (Borja *et al.*, 2019). The low real fruit prices have had an impact on crop profitability (Sangerman *et al.*, 2013), as these grew at an average annual rate of 4.2% between 2010 and 2022 (SIAP, 2023a). In 2022, the guava price in the Calvillo-Cañones region was 17% lower than the price received by the guava growers of Jalisco, Mexico (SIAP, 2023a). This was attributed to the volatility of prices, whose effect which hurt the income and profits of guava growers (Ramos *et al.*, 2017). The latter, in part, was because Zacatecas and Aguascalientes coincide with the production seasonality between August and December (SIAP, 2023b).

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Regarding the dynamism and specialization index average, the values were low, 0.009 and 0.1265, respectively. However, Aguascalientes had high values in these indexes (0.36 and 22.2, respectively), because growers oriented their efforts to exports, mainly to the USA, and to specialization in the domestic marketing of guava (Borja *et al.,* 2016).

The direct (≈ 309 thousand annual day laborers) and indirect jobs around the crop in Zacatecas enhance the importance and the search for opportunities to maintain or encourage the productive activity of this crop.

The guava agrifood chain competitiveness was affected by the increase in production costs, associated with the increase in the cost of fertilizers and inputs to pest and disease control as well as the increase in costs associated with irrigation. All these factors negatively influenced the profitability of the orchards and fruit quality. Therefore, the current situation of guava production is a quite favorable opportunity to adopt adequate cultural practices (e.g., irrigation systems, pest and disease control, pruning and fruit thinning alternatives, and plant nutrition, mainly) (Padilla *et al*., 2022). However, the most important element for increasing fruit crop productivity is the use of improved guava varieties (Khan *et al*., 2020)

The competitiveness of the guava agrifood chain has been affected by the increase in production costs associated with fertilizers cost, pests and diseases control, and irrigation costs. All these factors negatively influenced the guava orchards' profitability and fruit quality.

In Zacatecas, post-harvest handling of guava is insipient: guava is harvested by hand and transported in bulk or unprotected boxes. This generates a high percentage of damaged fruit cosmetically that is eventually discarded (Medina *et al.,* 2016). Growers are undercapitalized and therefore, infrastructure investment for harvesting, transportation, selection, packaging, transformation, and storage has been low or nonexistent. However, trends in guava consumption have changed. In developed markets, consumers consider aspects such as safety, preference in purchase places, convenience, environmentally responsible packaging, new value-added products, and benefits to human health (Nguyen *et al.,* 2020).

Conclusions

In the state of Zacatecas, the guava agrifood chain is currently in a retraction status due to its low socioeconomic importance and competitiveness. This situation is a result of a significant decrease in the established area with this fruit crop, caused by various climatic, productive, and economic factors that growers have been acing. Therefore, the diffusion, adoption of technological innovations, and the use of improved guava varieties are imperative to enhance crop productivity. Besides, to recover the socioeconomic and competitive importance towards the sustainability of this agrifood chain for both regions the "Cañones" and “Calvillo” together make up a compact production zone called "Calvillo-Cañones".

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ISSN: 2444-3204

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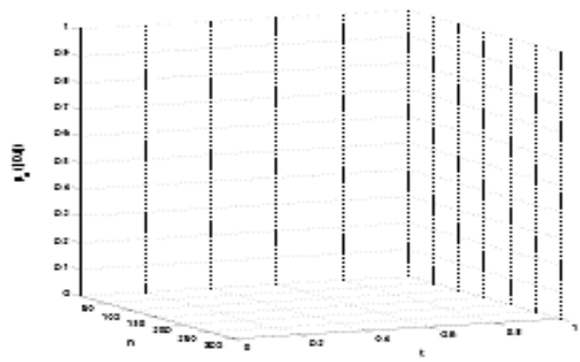

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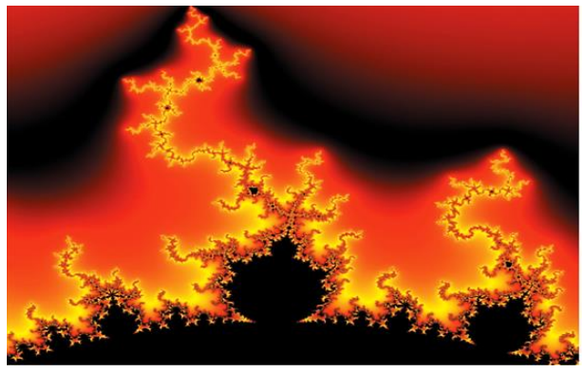

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