Editor's Letter

This issue contains four research articles subjected to the peer-review process.

Customers' perception of the determining factors of Visual Merchandising in Caracol points of sale in Holguin of sale in Holguin, is the first article, written by Dayana González-Morera, Félix Díaz-Pompa, Miguel Ángel Gozález-Infante, and Ania Yelina Fernández-Lara. It analyzes the perception of customers who visit points of sale on the determining elements of visual merchandising. The study is carried out under a quantitative and descriptive approach through a survey applied to a sample of 159 external customers, where it was found that there is a primarily positive perception. However, there are unfavorable factors such as the ambiance with music, the relevance of promotions, seasonality, and distribution of products. In conclusion, it is known that Caracol stores, although they use Visual Merchandising, have aspects that customers negatively perceive.

The second article was written by Mayra Lucía Maycotte de la Peña, Karen Montaño Silva, Jesús Martín Robles Parra, and Jesús Lauro Paz-Luna. Its title is *Quality and Organizational Innovation: Competitiveness Tools in the Table Grape System.* The objective was to analyze quality management strategies as organizational innovation practices incorporated by table grape-producing organizations and their relationship with competitiveness. The data was obtained by elaborating a semi-structured interview script, which was applied to the managers or responsible people of the Sonoran table grape-producing organizations. The results allow us to recognize the main innovations organizations incorporate, specifically those related to organizational innovation. It was concluded that quality and organizational innovation are considered essential practices to generate competitive advantages in organizations since they generate knowledge, learning, and skills that drive decision-making aimed at business success.

Tacit and Explicit Knowledge: Drivers of the Competitiveness of Universities is the following article. Its author is Manuel Ortiz Barrera. This work examines these two cognitive dimensions through a confirmatory factor analysis to determine whether their relationship with the competitiveness variable is suitable for generating genuine competitive elements. These variables have been reviewed based on available cutting-edge literature and collected a priori from Mexican higher education institutions. Cognitive elements serve as precursors to competitiveness; however, comprehending this necessitates an analysis of the cognitive

asset from a dimensional perspective, wherein formal and informal knowledge criteria are scientifically established as explicit and tacit knowledge.

Ana Rocío Valenzuela Quintero and Luis Alberto Bellon Álvarez wrote *Trademark Influence and Brand Experience on Consumer's Loyalty to Fast Fashion Brands,* which is the fourth article. The authors investigated the relationship between Brand love and Brand Experience with Brand Loyalty in fast fashion consumers in the ZMG. A quantitative instrument was built from whose answers it is intended to know if there is a positive relationship between the concepts of Love and Brand Experience and Brand Loyalty. From the results obtained, it sought to know the characteristics of the market, as well as the purchasing behavior and which of the brands studied is a favorite. The ANOVA was used to check whether the hypotheses were approved or rejected and to know the most critical consumer dimensions when developing loyalty to a fast fashion brand. The results reveal a positive relationship between the Brand Loyalty and Brand Experience and Brand Love scales. Therefore, the 2 Hypotheses presented for this study were accepted.

We thank our authors for their papers. We thank the readers for recommending and citing Mercados y Negocios, and our editorial team for not giving up in times of hard work. We want to demand more of ourselves every day and relentlessly aim to achieve more.

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José Sánchez Gutiérrez
Director

Customers' perception of the determining factors of Visual Merchandising in Caracol points of sale in Holguin

Percepción de los clientes sobre los factores determinantes del Merchandising Visual en puntos de venta Caracol del destino Holguín

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ABSTRACT

This research aims to analyze the perception of customers who visit points of sale on the determining elements of visual merchandising. The study is carried out under a quantitative and descriptive approach through a survey applied to a sample of 159 external customers, where it was found that there is a primarily positive perception. However, there are unfavorable factors such as the ambiance with music, the relevance of promotions, seasonality, and distribution of products. In conclusion, it is known that Caracol stores, although they use Visual Merchandising, have aspects that customers negatively perceive.

Keywords: visual merchandising, merchandising, store, retail, costumers.

JEL code: M31, L18

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RESUMEN

El objetivo de la presente investigación es analizar la percepción de los clientes que visitan los puntos de venta sobre los elementos determinantes del merchandising visual. El estudio se realiza bajo un enfoque cuantitativo y de carácter descriptivo, mediante una encuesta aplicada a una muestra de 159 clientes externos, donde se pudo comprobar que existe una percepción mayormente positiva, aunque existen factores desfavorables como la ambientación con música, la pertinencia de las promociones, la estacionalidad y la distribución de los productos. En conclusión, se conoce que los establecimientos comerciales Caracol pese a que hacen uso del Merchandising Visual, manifiestan aspectos estimados de forma negativa bajo la percepción de los clientes.

Palabras clave: merchandising visual, merchandising, tienda, minorista, clientes

Código JEL: M31, L81

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INTRODUCTION

Tourism is currently developing rapidly, reaffirming itself as one of the most dynamic industries in the world; for many countries, it is the primary source of income, which becomes a development incentive that strengthens traditional economic activities and increases their value (Mackay et al., 2022).

According to Pérez and Sarmiento (2016), destinations are forced to identify all their attractions to create and offer competitive and sustainable products capable of meeting their expectations, considering that consumers have been transformed as a result of changes in their living patterns, becoming increasingly demanding and selective (Mackay et al., 2022).

Because of the above, it is essential to emphasize that the evolution of tourism cannot be separated from commercial movements and, more specifically, from trade, which constitutes "the fundamental link between production and consumption" (Vázquez, 2010, p. 277). The relationship between commerce and tourism is materialized in the modality of shopping tourism. Bulnes (2021) points out that shopping, besides acting as a leisure activity, also becomes an infallible opportunity to show the culture to the host and expand the knowledge of the tourist destination.

In this sense, visual merchandising is a fundamental tool for retailers because it captures customers' attention and influences their purchasing behavior. This research will improve the Management of visual merchandising in Caracol points of sale by including customer perceptions, thus becoming a valuable tool for researchers and managers of shopping tourism.

LITERATURE REVIEW

The presence of shops in tourist destinations is essential. Shopping malls and specialized stores are generally located in areas connected to the city's busiest areas, and their scope is adapted to the tourist population staying in the destination and to the flow of visitors in transit (Escobar, 2013).

The products sold in these shops should reflect the most attractive features of a tourist destination. Escobar (2013) specifies that they should be characterized by a wide range of nationally produced items, competitive and reasonable prices, personalized attention, and adequate Management of the point of sale.

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According to Roggeveen and others (2021), retailers should focus on creating unique and original products. Using local products to reflect local characteristics can be very attractive to consumers. If someone can also make products like art, it can create a high perceived value in them. Incorporating sustainable products is a growing trend that can differentiate a company from the competition and appeal to environmentally conscious consumers. Moreover, for consumers interested in fashion, offering high fashion products in the assortment can be an effective strategy to attract them.

Regarding the Management of the point of sale, Cant and Hefer (2013) explain that in the physical space or point of sale, strategies such as visual merchandising are known that aim to promote the purchase intention, as it is a process that is oriented towards the effective marketing of products at the point of sale. In addition, Premchandran and Sahay (2015) add that it influences the store's merchandising and leads customers to spend more time in the retail store.

Visual merchandising refers to how merchandise is presented in the store, both inside and outside, to create a positive and distinctive image of the retail establishment that attracts attention and arouses consumer interest, desire, and action (Bist & Mehta, 2022). This merchandise presentation is coordinated with other elements such as advertising, fashion, special events, and merchandising departments to provide the customer with an appropriate shopping experience (Dash et al., 2018).

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By the above, the analysis of the influence of visual merchandising on impulse buying behavior is a pillar to attract customers' attention. From the conceptualization of the elements that make it up, it is possible to assess how it influences buying behavior (Gudonavičienė & Alijošienė, 2015). An example of this is the proper organization of the point of sale, which influences the consumer's expectations so that the message that the company wants to give and encourages the purchase of products is captured (Pantano et al., 2021).

Studies related to visual merchandising show the importance of promotional signage. Karunarathne (2021) states that this provides the consumer with more information about the product offered, so it becomes a guide for customers to visualize the most relevant products within the point of sale. Kaldeen and Mufeeth (2020) emphasize the role of window displays as they increase the desire to buy a product that was not planned, either because of the offer or because of the impulse to observe an eye-catching window display.

Palomares (2011) considers the interior and exterior architecture of the store, ambiance, presentation time, and point-of-sale marketing as fundamental elements of visual merchandising. In convergence with this criterion, Basu and others (2022) analyze how

visual merchandising variables related to retail atmosphere, such as store design, window display, color, and lighting, influence consumer attention.

Studies of retail atmosphere aim to understand how it affects purchase decisions, consumers' emotional responses, and their post-purchase behavior, such as word-of-mouth. Although music has been the primary focus of researchers, in recent years, the importance of a more holistic view of the atmosphere as a critical dimension of the retail experience has been increasingly recognized Basu, Paul, and Singh (2022). This research is considered valuable for visual merchandising management, which requires more holistic approaches and contextualization in different destinations where the customer perspective is known.

Considering the elements analyzed a priori, it can be said that visual merchandising plays a decisive role at the time of purchase since the consumer has the impulse to purchase the product or service due to the stimuli generated at the point of sale (Prieto et al., 2022). In this sense, retailers base a large part of their decisions on visual merchandising, so they try to organize their points of sale properly to offer consumers a better experience for their senses. To apply a visual merchandising strategy, choosing the right place and carrying out prior planning consistent with the objectives (Kpossa & Lick, 2020).

Cuba has many stores located in key points of its tourist destinations. Not exempt from this is the destination Holguin, which has a network of stores belonging to the Caracol Holguin Branch, which sells a range of products divided into clothing, underwear, shirts, handbags and accessories, footwear, beverages, perfumery, tobacco, cigarettes, coffee, glassware, among others; it also has a highly qualified staff with a positive attitude towards customer service. This research will focus on how the defining elements of visual merchandising behave in these points of sale from the consumer's point of view.

The present study defines the objective of analyzing the perception of national and international customers who visit Caracol points of sale in the destination of Holguín on the determining elements of visual merchandising, which is necessary due to its notable influence on the purchasing behavior of consumers.

METHODOLOGY

This research is conducted using a quantitative and descriptive approach. For the field research, the survey was selected as the data collection instrument to evaluate the essential aspects of interest to the researchers. The questionnaire is made up of 19 closed questions, including a series of informative questions related to age, gender, education level, occupation, and country of origin, in addition to the section related to the topic of the

research, which has 15 aspects distributed in four dimensions: Exterior Architecture, Interior Architecture, Ambience and Presentation Times, with response categories on Likert-type scales: 1 strongly disagree, two disagree, three neither agree nor disagree, four agree and five strongly agree, which together made it possible to measure customer perception.

To test the reliability and validity of this instrument, the IBM SPSS Statics 26.0 statistical software was used, where Cronbach's Alpha is the index used to prove the reliability of internal consistency and the KMO coefficient (Kaiser-Meyer-Olkin) in the case of validity. According to the SPSS outputs, the Cronbach's Alpha of the survey applied to external customers is 0.729 ($\alpha = 0.729$), a value between 0.61 and 0.80, so the survey is reliable according to Hair and others (2004).

In the case of determining the validity of the instrument, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated; the result was a value of $KMO = 0.777$, which determines that the survey has an average validity between $0.8 \geq KMO > 0.7$, according to the criteria of Hair and others (2004).

Therefore, the designed instrument represents an effective tool for managing primary information and knowing customers' perceptions of the determining elements of visual merchandising in Caracol points of sale. For the application of this survey, the sample size or number of customers to be surveyed was determined by simple random sampling.

The expression applied to statistical sampling for finite populations, taking as a population the customers who visit the Caracol points of sale located both in the hotels and the city of Holguin destination between December 1, 2022, and January 19, 2023, obtaining a sample of 159 external customers to which the survey was applied.

The data was processed, and the information was presented in tables using IBM SPSS Statics 26.0. The mean values were used as the analysis value for each dimension studied. They are evaluated on a five-point Likert scale, where 1 indicates a very negative perception, and 5 indicates a very positive perception.

By calculating the average of the participants' responses, a value is obtained that represents the general perception of the respondents on each evaluated aspect of each dimension of visual merchandising analyzed in the Caracol points of sale. In addition, the standard deviation was included as a parameter to evaluate the degree of variability of the participants' answers on each evaluated aspect. In this sense, a high standard deviation indicates a more significant variability in the participants' responses, suggesting a greater diversity in the respondents' perceptions of a particular aspect.

Therefore, a high standard deviation may indicate an area for improvement, as it suggests a more significant opportunity to reach consensus and improve customers' overall perception of the visual merchandising elements of the store being studied.

RESULTS

The sample consisted of 159 clients, of whom 93 (58.49%) were female and 66 (41.51%) were male. The ages of the participants ranged from 16 to 29 years 29 (18.24%), 30 to 39 years 54 (33.96%), 40 to 49 years 46 (28.93%), 50 to 59 years 25 (15.72%) and 60 years or more 5 (3.15%). As for the level of education, 12 (7.55%) have the category of technician, 72 (45.28%) have higher secondary education, and 75 (47.17%) have higher education.

Regarding the occupation of the clients interviewed, 24 (15.09%) are students, 81 (50.94%) are employees, 14 (8.81%) are self-employed and 40 (25.16%) are professionals. In terms of country of origin, 43 (27.04%) come from Canada, 75 (47.17%) from the Cuban community abroad, 21 (13.21%) from the United States of America, and 20 (12.58%) from France. The following results demonstrate customers' perceptions of the dimensions studied:

Exterior architecture

The exterior architecture of stores is a faithful representation and a trademark of their style, which provides information about the store before entering it. It is fundamental to creating a first impression that influences the customer's decision to enter. The results in Table 1 show that customers perceive stores positively regarding their visual identification and attractiveness. Most items have a mean score above four on a scale of 1 to 5.

Table 1
Descriptive Statistics Dimension Exterior Architecture

	Items	N	Min	Max	Mean	SD
1.	Store logo is easily identifiable	159	1.00	5.00	4.264	0.791
2.	The main entrance to the store is visually appealing	159	1.00	5.00	4.126	0.847
3.	The store has an eye-catching window display	159	1.00	5.00	2.151	0.963
4.	The visual image of the store motivates you to buy	159	1.00	5.00	4.126	0.979
5.	Store name is visible from a distance	159	1.00	5.00	4.107	0.972
6.	The colors of the store allow for greater visibility from a distance	159	1.00	5.00	4.182	0.973
	N valid (per list)	159			**3.826**	

Source: Own elaboration.

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Customers feel that the store logo is easily identifiable, the main entrance is visually appealing, and the store colors allow for greater visibility from a distance. However, the mean score for eye-catching window display was relatively low (M: 2.151, SD: 0.963), which may indicate an area of improvement for the store regarding its visual presentation. These results suggest that the store has an excellent overall visual image, but specific aspects can be improved to enhance customer perception and increase visual appeal.

Interior Architecture

Interior design ranges from functional aspects, such as the arrangement of products to facilitate shopping, to visual aspects to create a pleasant environment for consumers. Based on the results in Table 2, customers perceive the store positively, with an overall mean score very close to 4.

Table 2
Descriptive Statistics Dimension Interior Architecture

	Items	N	Min	Max	Mean	SD
1.	Store aisles help locate different products	159	1.00	5.00	4.164	0.892
2.	Distribution of store products is appropriate	159	1.00	5.00	3.535	1.146
3.	The store is adequately equipped for the presentation of the products	159	1.00	5.00	3.818	1.055
4.	The different areas of the store are marked to make it easy to find the desired product	159	1.00	5.00	3.755	0.998
	N valid (per list)	159			**3.818**	

Source: Own elaboration.

Most of the items received a mean score above 3 points on a scale of 1 to 5, although with a very high standard deviation. Customers feel that the store's aisles help them find the different products and that the areas of the store are marked to help them find the products they want. However, the mean scores for adequate product layout (M: 3.535, SD: 1.146) and adequate furniture for product presentation (M: 3.818, SD: 1.055) were relatively low and with a high degree of dispersion of customer perceptions, showing an SD higher than 1. 000, indicating a lack of consensus on these aspects, which may indicate areas for improvement for the store in terms of product organization and presentation.

These results suggest that the store has good product distribution in general. However, there are specific aspects that can be improved, such as the placement of higher priced products at eye level, on the other hand, the Management of the displays and the furniture used in correspondence with the product displayed, to be attractive to the visual perception of the customers.

Atmosphere and ambiance

Visiting a facility to shop involves interacting with an environment that should evoke positive emotional responses that make the customer feel in perfect harmony with the environment, thus influencing purchasing behavior.

The results show that customers positively perceive the store's atmosphere and ambiance (Table 3). Customers feel that the store's colors make it more attractive and that the lighting enhances the quality of its products. In terms of these factors, colors such as black, gray, and white, which give a sense of space, predominate in the stores, and in others, a range of brown and yellow colors in line with the theme of the Sucursal Comercial Caracol.

Table 3
Descriptive statistics dimension Atmosphere and ambiance

	Items	N	Min	Max	Mean	SD
1.	The colors of the store make it more attractive	159	1.00	5.00	4.462	0.604
2.	Music is played in the store as a method of capturing their attention	159	1.00	5.00	1.730	0.777
3.	Lighting highlights the qualities of the products in the store	159	1.00	5.00	4.428	0.689
	N valid (per list)	159			**3.540**	

Source: Own elaboration.

On the other hand, the facilities' lighting is optimal, which is a plus, so customers can easily observe products and small details (prices and labels). However, the mean score for music to attract customers' attention could have been higher (M=1.730; SD=0.777), suggesting that customers do not highly value this aspect or that the store may need to improve its selection of music or the way it is played.

Presentation times

Presentation times are a critical factor in the display of products for the correct Management of visual merchandising and a consequent increase in sales. However, the results in Table 4 show an average score (M= 3.003). Regarding the conspicuous highlighting of seasonal products, the score obtained is low (M= 2.214, SD= 1.040), with a high dispersion among the respondents' criteria due to the display of the same presentation throughout the year without respecting the seasonal timing, suggesting that customers may have difficulty finding seasonal products or that the store may need to improve its visual merchandising strategy to highlight these products more effectively.

On the other hand, the mean score for promotion duration was relatively high, albeit with an SD above 1.000, suggesting that customers perceive the duration of promotions to be

appropriate, but there is no consensus among respondents. It may indicate that the store has an appropriate promotion strategy that must fully align with customer needs and expectations. As part of their promotion strategy, stores may need to improve how they highlight seasonal products, are effective in duration, and are tailored to customers' needs and expectations.

Table 4
Descriptive statistics dimension Presentation times

	Items	N	Min	Max	Mean	SD
1.	The store's seasonal products are prominently displayed	159	1.00	5.00	2.214	1.040
2.	The duration of promotions is prudent	159	1.00	5.00	3.792	1.137
	N valid (per list)	159			**3.003**	

Source: Own elaboration.

DISCUSSION

The Caracol points of sale in Holguín, cataloged as tourist and non-tourist shops, are a resource for income generation, so it is appropriate to look for ways to motivate customers to visit these facilities and positively influence their purchasing behavior.

Visual merchandising is an effective tool to capture customers' attention and induce them to make unplanned purchases through the art of creatively presenting products and effectively instructing consumers, facilitating a successful sales process, displaying products in a realistic environment, creating a pleasant environment for merchandising an item, attracting customers' attention, and helping them to satisfy their desires.

In this sense, visual merchandising is a marketing technique that effectively uses visual elements. Start outside the store, such as window displays and lighting, and continue inside to improve the store's image and increase sales (Bist & Mehta, 2022). According to Gusó (2016), a store must use visual merchandising for the expected first impression, which is the one that counts the most and stimulates customers to make a purchase decision.

Dadras and others (2017) define visual merchandising as the technique or aesthetic display of merchandise to attract potential buyers and incite them to buy, and that commonly occurs in retail spaces such as stores; likewise, many retailers use visual merchandising as a way to capture attention by making the brand visually appealing to the target audience (Roggeveen et al., 2021); therefore, the purpose of visual merchandising is to capture the attention of the customer in the store to purchase the product, taking into account exciting and attractive presentations that enhance the image and display of the merchandise (Ajithk et al., 2018).

It was known that the Caracol points of sale, in terms of exterior architecture, have a modern and suggestive structure that enhances the entrance of the stores, positively influencing the

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decision to enter these establishments. Also, it has a visually attractive image and compatibility with the company's identity, offering consumers a pleasant and striking visual experience, genuinely generating the desire to visit and buy.

These elements that make up the exterior architecture of the establishment make it possible to reveal the identity and personality of the store, thus contributing to the transmission of its corporate image, which it externalizes on a physical and psychological level (Palomares, 2001).

Using these tools at the point of sale should be as attractive and aesthetic as possible because this is the hook and the invitation to the public to visit the point of sale (Alvarado, 2020). In this regard, Morgan (2014) points out that the external image of the establishment is of great importance when it comes to positioning, as it reflects the personality and style of the store. Therefore, careful planning of the external elements of the point of sale is necessary.

On the other hand, it is essential to mention that most of the stores studied do not have window displays as an attraction resource due to their absence in the design of points of sale, caused by the ignorance of their positive influence on purchasing behavior as a primary piece of visual merchandising, denying customers the opportunity to perceive at first glance a pleasant impression of what is marketed from a creative and seductive perspective.

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Therefore, under these specific circumstances, it is known that window displays are cataloged as a genuinely defining element because they recreate, encourage, and inspire consumers, collaborating for the construction of an association between what is observed and what people want to make known of the store, with this agrees Llovet (2021), who states that it is crucial to stimulate the imagination of the consumer, the idea that the garment shown is theirs, and also associate this idea with a state of happiness.

In convergence with the above is stated by Mendizabal (2018), who states that the window display is the fundamental channel of communication between the customer and the establishment; this must be informative and persuasive to attract the attention of the customer in a short time; likewise, a promise of price, fashion, variety, design, quality, sophistication, must be delivered to the consumer.

In terms of interior architecture, the results show that the stores have aisles with an appropriate design, with a logic that favors the circulation and orientation of customers in the search for a particular product. These are presented in racks, gondolas, displays, tables, and shelves, organized strategically, rationally, and orderly.

However, in some cases, the most expensive products are not at eye level, which reduces the possibility of selling them due to the lack of knowledge of the personnel in charge of the stores about the use of this type of techniques, and because in some cases, the furniture they have is not the most appropriate.

In this regard, Palomares (2001) states that the distribution of goods at eye level is considered the hottest area and, theoretically, the one that sells the most because it is where most of the viewers' eyes are always directed, located at the horizontal level of the eyes, between 1.40 and 1.70 meters.

Quintanilla and Zúñiga (2016) agree with this position raised by the author, explaining that the level and area of the presentation should be considered because influences sales, it is easier to sell items that are at eye level and within reach of the customer's hands.

In turn, the aspects considered harmful according to this study should be considered since interior design, as Morgan (2014) explained, guides shoppers through an establishment in a logical sequence and encourages them to stop at specific points and finally buy an item. This underlines that good visual merchandising in the store should be oriented to make every inch of the establishment profitable around the merchandise and the logical circulation of the consumer.

According to the above, the interior design of the store creates the space and the way the products are displayed so that the customer can shop spontaneously (Sindhu, 2020); it also affects the visual experience of the shopper and, accordingly, the time spent in the store, the movement through the aisles, the allocation of attention and money among departments and categories (Mowrey et al., 2019); in addition, it involves several things in store planning, such as the selection of materials, furniture, fixtures, and product placement to make the store more attractive and eye-catching to potential consumers (Putra, 2020).

In terms of atmosphere and ambiance, the colors that persist in most stores are black, gray, and white, shades that make the presentation of the products more attractive. Other cases also use various brown and yellow colors aligned with the company's theme. In this regard, color is qualified by Medina and others (2020) as one of the most relevant aspects in the field of visual merchandising, not only because it inspires consumers in their purchase but also because it is the most economical tool that can be exploited.

White color is considered correct because it is a neutral tone that gives the sensation of purity and cleanliness. It is considered the preferred color in the backgrounds, as it does not create any exorbitant reaction (Medina et al., 2020). It is also convenient to use the corporate colors

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implemented in some of the facilities since it is crucial to consider the company's identity to which they belong and with which they identify (Romero, 2021).

As for the lighting, it is adequate, favoring a good observation of the products displayed, giving greater visibility power to the customers, and complementing the design of the stores in terms of visual exposure. In this regard, Romero (2021) defines light as an element of spatial guidance that guides the customer in a way that is oriented to the intended route, thus enhancing the stay experience.

Aspfors (2010) considers it essential to have adequate lighting in the store, considering that brighter lights attract more attention than stores with low lights. It is due to the simple fact that consumers can quickly identify their desired product in bright light compared to low light. Even minute details about the product, such as the ingredients used in its manufacture and any labels, are essential to consumers and can only be observed if customers are provided with proper lighting.

In addition to the above, it is imperative to emphasize that it is the responsibility of the store management to ensure that the lighting is such that it creates a pleasant and calm environment for the customers since sight is one of the senses that facilitates the buying process and is therefore extremely important in the visual merchandising technique (Aspfors, 2010).

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Although the components analyzed were positive, there is a factor considered unfavorable: the stores are not set with musical themes, and the products that are sold, not in tune with the cultural and identity values of the destination, are factors that become a disadvantage in attracting consumers; Morgan (2014) explains that music is a component of visual merchandising that enhances the overall atmosphere of the store and should be adapted to the style of the items sold, as well as to the clientele that frequents the establishment, in a way that helps promote the brand image.

Also, research by Baker and others (1992) shows how a combination of classical music and soft lighting signals to consumers that they should expect to pay higher prices. It should be added that it is essential to consider the type of music, its variety, and volume to make the customer feel comfortable at the point of sale (Sanz, 2016). Music is a crucial factor for impulse sales; silence in a store is unacceptable. It can increase or decrease the time spent in the store (Bohórquez, 2020), although the effects may vary depending on the gender and age of the customers, as well as the music itself.

Finally, regarding the presentation time, seasonal products should be highlighted attractively, and the seasonal time should be respected regarding the duration of promotions. However, they are made for special dates such as "Valentine's Day," "Mother's Day" and other

representative occasions. They are not considered as a whole. On the other hand, they do not focus on the national image and brands, lacking dates linked to cultural and identity values that show the soul of Cuba represented in its products.

Considering the aspects mentioned a priori is helpful because according to Farzana and others (2022). However, advertising may not fully influence the qualities and standards of consumers and the possibility of changing the negative mood towards an increasingly positive product vision. Palomares (2001) agrees with this and considers that there should be a strategic procedure appropriate to the time, promotion, and seasonality of each product, which integrates the attraction of the offer to attract the customer to the establishment, to implant the products in the mind of the consumer, as an alternative closer to the purchase.

CONCLUSIONS

As conclusions of the present research, it is affirmed that for creating pleasant and attractive environments for the customers in commercial establishments, such as stores, it is imperative to apply visual merchandising. Visual merchandising aims to influence the customers to create a positive image of the stores in their minds, to contribute to the promotion of the stores, and to stimulate the intention to buy.

According to the evaluation of the visual merchandising components (exterior architecture, interior architecture, ambiance, presentation times), the highest-rated and best-valued dimensions are exterior architecture, interior architecture, and ambiance when it comes to driving purchases at the point of sale. In this sense, exterior architecture, interior architecture, and ambiance are vital variables that can significantly affect the customer's shopping experience at the point of sale.

Exterior architecture can capture the customer's attention and create a positive impression before entering the store. On the other hand, interior architecture can influence how customers perceive and navigate the store and their shopping behavior. Ambiance can create a pleasant and inviting environment that engages the customer's senses and makes them feel comfortable and relaxed. These variables can be critical in creating a sensory shopping experience that encourages purchase and builds customer loyalty.

Retailers must understand the importance of these variables and use them effectively to create an engaging and memorable shopping experience. Doing so can improve customer satisfaction and increase customers' likelihood of returning to their store.

The questionnaire results determined weaknesses in some of the determining factors of Visual Merchandising, such as the ambiance of the stores with music, the relevance of promotions, seasonality, and product distribution.

Finally, it must be said that the points of sale of the Caracol store network. However, the application of Visual Merchandising is not unfavorable, and it is advisable to use novel techniques to solve the aspects that were negatively evaluated from the perception of customers, favoring the motivation of consumers at the time of purchase and, consequently, greater commercialization of the products sold.

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Quality and Organizational Innovation: Competitiveness Tools in the Table Grape System

Calidad e innovación organizacional: herramientas de competitividad en el sistema uva de mesa

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ABSTRACT

The research analyzes quality management strategies as organizational innovation practices incorporated by table grape-producing organizations and their relationship with competitiveness. The data was obtained by elaborating a semi-structured interview script, which was applied to the managers or responsible people of the Sonoran table grape-producing organizations. The results allow us to recognize the main innovations organizations incorporate, specifically those related to organizational innovation. It was concluded that quality and organizational innovation are considered essential practices to generate competitive advantages in organizations since they generate knowledge, learning, and skills that drive decision-making aimed at business success.

Keywords: Quality Management; Organizational Innovation; Certifications; Competitiveness

JEL code: L2, M10, M11

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RESUMEN

La investigación busca analizar las estrategias de gestión de calidad como prácticas de innovación organizacional incorporadas por las organizaciones productoras de uva de mesa y su relación con la competitividad. Se realizaron entrevistas semiestructuradas a los gerentes o responsables de las organizaciones productoras de uva de mesa sonorenses. Los resultados encontrados permiten reconocer las principales innovaciones incorporadas por las organizaciones, específicamente las relacionadas a la innovación organizacional. Se concluyó que la calidad y la innovación organizacional se conciben como prácticas indispensables para generar ventajas competitivas en las organizaciones, pues genera conocimientos, aprendizajes y habilidades que impulsan la toma de decisiones encaminadas al éxito empresarial.

Palabras clave: gestión de calidad; innovación organizacional; certificaciones; competitividad

Código JEL: L2, M10, M11

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INTRODUCTION

Currently, agricultural organizations need to adapt their organizational practices to meet the quality demands of a globalized and dynamic market. Adaptation occurs by searching for strategies that allow them to maintain their competitiveness. Table grape production in the state of Sonora is one of the agricultural activities with a good position in international markets; hence, the relevance of analyzing the strategies that have led these organizations to achieve said positioning.

To enter new markets, organizations and their leaders must have clear management strategies. A key to this is to know the organizational innovation approach that allows handling their management practices, reconfiguring their organizational structure, and strengthening their relations with the outside world by incorporating new procedures that enable them to meet market demands efficiently.

Quality management, an organizational innovation practice that includes planning, control, assurance, and improvement actions, can become an advantage over its competitors and achieve an adequate position in the markets. Therefore, this study aims to analyze quality management strategies as organizational innovation practices implemented by table grape-producing organizations in Sonora and their relationship with competitiveness, allowing them to position themselves in increasingly demanding markets.

IMPORTANCE OF THE TABLE GRAPE SYSTEM FOR MEXICO

According to the Servicio de Información Agroalimentaria y Pesquera (SIAP, 2022), Mexico produced 358,791 tons of grapes to be consumed fresh in 2021 and ranked number 26 as a world producer. Of this amount, 53% was sold internationally; the United States was its primary customer. Belize, Guatemala, Honduras, El Salvador, Ecuador, Panama, Costa Rica, Nicaragua, Japan, Australia, Canada, and Europe are other destinations where Mexico sells its fresh grapes. Sonora is the country's leading table grapes producer, followed by Zacatecas and Aguascalientes (SIAP, 2022). See Table 1.

Table 1
Production volume of the leading entities

Federal entity	Volume (tons)
Sonora	287,913
Zacatecas	54,589
Aguascalientes	7,179
Baja California	5,367
Jalisco	2,015

Coahuila	966
San Luis Potosí	325
Puebla	239
Guanajuato	95
Baja California Sur	78
Others	25

Source: Adapted from SIAP (2022).

Importance of the table grape system for Sonora

In 2021, Sonora contributed 92.4% of the value of national grape production and represents first place in production value, followed by asparagus, wheat, and potatoes. The central municipalities where grapes are harvested are Hermosillo, Caborca, San Miguel de Horcasitas, Carbó, and Guaymas (SIAP, 2022). The behavior of table grapes in Sonora in recent years is shown in Table 2.

Table 2
Behavior of table grapes in Sonora

Year	Planted area (ha)	Harvested area (ha)	Production (t)	Yield obtained (t/ha)	Average rural price ($/t)	Production value (thousands of pesos)
2017	18,696.00	17,416.50	310,926.30	35.73	41,845.86	6,100,897.37
2018	19,710.00	18,705.00	319,028.77	34.06	48,090.17	7,641,951.20
2019	19,999.00	19,201.00	350,816.80	36.55	56,332.27	9,578,296.50
2020	20,351.00	19,523.00	320,990.10	33.32	59,677.91	9,296,739.69
2021	16,821.00	16,413.00	287,913.13	52.45	91,531.02	8,637,581.45

Note: The data published by the SIAP through the SIACON platform show the behavior of table grapes in Sonora in the last five years.
Source: Adapted from SIAP (2022).

According to Terán, Robles, and Paz (2023), the table grape system comprises approximately forty organizations that allocate 95% of their production for export. The entity's production is around 25.4 million boxes. Hence, the table grape system is essential in the national and regional panorama due to the foreign exchange it generates and the labor employment rate since tens of thousands of day laborers from the entity and the countries south arrive to harvest the grapes. (Bañuelos-Flores et al., 2019).

Table grape varieties harvested in Sonora are red, green, and black; some are traditional varieties such as Perlette, Flame, Red Globe, Sugraone, or Superior and Black Seedless. Others are new patented varieties incorporated because of market demands, such as Sweet Celebration, Cotton Candy, and Sugar Crisp. It has given approximately forty seedless varieties, harvested and marketed mainly in May, June, and July (Herrera-Cebreros et al., 2022).

Sonora's Export Market

Around 95% of the grapes produced in Sonora are destined for the export market, and 5% are for the national market. The United States is the leading consumer of Sonoran grapes, with 82% of the production destined (Bañuelos-Flores et al., 2019). According to data from the United States Department of Agriculture (USDA), Mexican grapes are distributed in cities such as Atlanta, Baltimore, Boston, Columbia, Chicago, Dallas, Detroit, Los Angeles, Miami, New York, Philadelphia, and San Francisco (USDA, 2021).

During the commercial window from May to July, the Sonoran grape competes with the Californian table grape that markets it between July and December. It competes with the Chilean and Brazilian grapes during May, whose commercial window is from January to May (Bañuelos-Flores et al., 2019).

The product must meet each country's quality and safety requirements. In the United States, the United States Food and Drug Administration (FDA) and the USDA are the bodies that demand the requirements for introducing food into their country about size, Brix degrees/level of sugar, color, absence of pests, and exact weight.

The Fresh Trends study on American consumers' preferences shows that grapes are the third most demanded fruit and are mainly consumed as snacks. Purchasing preferences by variety also stand out: green seedless grapes are the most preferred, followed by red seedless and black seedless in third position (The Packer, 2022).

Other characteristics of the US grape market are that women mostly buy it; that the population that consumes it the most is the one that is in an age range of 59 years or older; those who purchase it have an annual income of between 50-99.9 thousand dollars (The Packer, 2022). This study emphasizes the concern of consumers for the use of pesticides and all those aspects that include environmental and social responsibility (The Packer, 2017).

In general, the Sonoran grape has had to advance in compliance not only with the intrinsic attributes of the product but also with those that are not visible to it.

QUALITY

For the consumer, quality is based on various criteria, including their needs, expectations, experiences, price, advertising, and perception of the company's image. If these consumers perceive that their criteria have been met, they will be pleased (Gutiérrez, 2010). Some quality dimensions are objective and do not change over time; others change with fashions; some characteristics are inherent to the product, and others are added (Garvin, 1984).

Quality and Organizational Innovation: Competitiveness Tools in the Table Grape System

Cuatrecasas and González (2017) and Evans and Lindsay (2008) list some of the definitions of quality made by scholars on the subject over time: Deming conceptualizes it as satisfying consumer needs; Juran as suitability for use and lack of defects; Ishikawa considers that the quality of a product goes from the design until it is delivered to the client and seeks that it be economical, beneficial and satisfactory for the consumer; for Crosby, it means compliance with the requirements; Feigenbaum, the precursor of total quality, promulgated that quality is a business lifestyle in which the entire company participates from the design of the product until it is in the hands of the consumer; for Taguchi, it is the minimum loss that the use of a product or service causes to society.

The term quality has evolved, and this evolution has been based on the present needs of each era. It has gone from the control stage to the assurance stage to reach what is currently known as total quality, which includes the two previous phases. Quality is no longer considered just a final product or manufacturing process characteristic. It is now a philosophy based on the commitment and leadership of senior management. It extends to all areas of the company, guided by a set of guiding principles of continuous improvement and innovation of the organization, whose purpose is the satisfaction of the needs and expectations of all interest groups: customers, shareholders, workers, and society, among others (Gutiérrez, 2010).

Authors such as Prieto and others (2008) add the ethical or emotional adjective to the concept of quality (ethical or emotional quality) when they speak of intangible attributes. These attributes group a set of characteristics that matter to the consumer and influence their purchase decision. They have to do with social and environmental sustainability, to which Maycotte and others (2022) call quality as the market's intangible demand. The purchase decision includes concepts such as environmental protection, worker protection, regional development, fair trade, the use of agrochemicals, or environmental improvement.

In summary, it can be said that quality is "the degree to which a set of tangible and intangible characteristics of a product or service are adapted to the demands of the market and together offer the consumer the satisfaction of their explicit and implicit needs" (Maycotte et al., 2022, p.120).

In an agri-food system, the market trend is dynamic since it is subject to changes in consumption habits (Rincón et al., 2015). Consumers are concerned about purchasing products they trust that the information on their label is truthful, that they do not risk their health, and that they meet their quality requirements (Araya-Pizarro & Araya, 2020). Globally, quality has become a priority for organizations, with emphasis on the complete satisfaction of customer needs and expectations, which has led to the emergence of certifiable standards that certify compliance with established parameters and provide the necessary

confidence in customers about the products they purchase, as well as the way they are produced (Berges et al., 2009).

In turn, agri-food product consumers have become more demanding and informed. Not only does it demand quality in compliance with specifications, but it also requires compliance with safety and health aspects for workers and care for the environment (Hernández & Villaseñor, 2014).

Quality management
Quality management is defined as a company management philosophy and a set of activities that determine the quality policy, objectives, and responsibilities to demonstrate that the organization can offer a product that constantly satisfies the requirements of the client, consumer, or user (Aguado et al., 2022; Amaya et al., 2020).

Managing quality is a strategic decision to face the accelerated changes in the market and adapt to consumers' expectations (Bonales et al., 2015). For Onegina and others (2022), quality management has become a strategic tool for the management of organizations, guided by current trends related to innovation and new technologies, changes in consumption habits towards healthy lifestyles, greater attention to environmental impacts, the use of communication networks, new markets, adaptation to new cultures and consumer preferences, and the quality standards of foreign countries.

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Having a quality management system is a practice of organizational innovation that allows directing work through the organization of human resources in a structure that allows planning, control, assurance, and continuous improvement of the quality of the goods offered in a sustained manner (Aguado et al., 2022; Hernández et al., 2018).

Management tends to focus on quality from the perspective of systems, that is, to satisfy the organization's internal and external customers. In other words, the quality strategy ensures that the customer values compliance with product requirements. Service is the conditions in which the product or service is produced (Hernández et al., 2018).

Due to the above, work should not be done in isolation. However, it should be integrated into other management systems such as safety, environment, occupational health, and safety. That is, management systems have evolved within the framework of a globalized market to also focus on more human aspects (Evans & Lindsay, 2008; Hernández et al., 2018).

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Certifications as a quality management strategy

In recent decades, distributors of the agri-food industry have promoted measures such as private certifications, standards, or quality and safety seals due to the growth of international trade in agricultural products, various outbreaks of diseases caused by the consumption of unhealthy food that have put public health at risk, the growth of the retail industry, consumer demands for quality and safe food and the inefficiency of public institutions to guarantee safety (Hu et al., 2023; Jin et al., 2023; Oppong & Kwasi, 2022).

The requirements for compliance with quality standards have also increased, certifications have been expanded to cover issues of social and environmental responsibility, and other links in the supply chain have been included to be in tune with consumer needs, meet their expectations, and stay in the market (De Castro et al., 2021).

These certifications can be voluntary and others mandatory and cover characteristics of products and processes, including quality, safety, security, environmental impacts, workers' working conditions, and other social impacts (Masakure et al., 2011). It agrees with the point of view of Hernández and others (2018), who argue that quality must be seen from a comprehensive approach that meets the health and safety of workers and cares for the environment to obtain economic growth for the organization.

For Berges and others (2009), certifications mean that the producer must differentiate themselves from their competitors and obtain a profit. For the consumer, they mean a way to confirm that a third party has endorsed the quality of the product and can place their trust in it (Jin et al., 2023).

In the agri-food system, certifications, standards, and seals are part of quality management strategies. Certifications such as Global GAP, BRC, ISO 22000, or IFS regarding Good Agricultural Practices and food safety are promoted by the large distributors of the agri-food chain, and others such as SMETA, Fairtrade, or Rain Forest Alliance, referring to aspects of social, economic, and environmental sustainability, are promoted by social movements, producer associations and non-governmental organizations (De Castro et al., 2021; Jin et al., 2023).

The primary quality standards used in the agricultural industry are those related to the application of Good Agricultural Practices and food safety in the preparation of products. These procedures are applied from the planning stage, harvest, and packaging to transportation, guaranteeing food safety and product traceability (Gómez et al., 2021).

There are internationally known and used standards for quality management systems, such as ISO 9001. However, agricultural organizations seek customer satisfaction through certifications with a quality and safety approach, such as those mentioned in the previous paragraph, which complies with the product's physical attributes and the preparation of safe food.

They also incorporate social responsibility standards that focus on ethical, social, and environmental aspects such as worker safety, decent working conditions, not hiring minors, respect for human and labor rights, and caring for the environment. Use soil, water, and resources (Contreras-Valenzuela et al., 2018).

For example, GlobalGAP is the most widely used standard globally and covers not only aspects of food safety but also environmental care, traceability, safety, and economic well-being of workers. Primus GFS is the most widely used food safety standard in the United States (Hu et al., 2023).

Agri-food certifications represent a guarantee of quality and safety for consumers and innovation in the market, which allow access to new and demanding markets through product differentiation, also satisfying retailers seeking a higher standard than that of the public norm (Hu et al., 2023; Rincón et al., 2015).

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When organizations adopt the standards, it will bring them some advantages, such as defining policies and objectives, employee training, market analysis, and feedback from customers and suppliers to satisfy their requirements. The organization will benefit from the adopted standard according to the degree of commitment of senior management. Otherwise, it would only be fulfilled symbolically (Tarí et al., 2020).

As benefits of adopting certifications, the following are listed: access to demanding markets, export channels, increased market share, greater export volume and value, vertical integration, greater productivity, better company management, higher wages, and better conditions for workers, among others (Hu et al., 2023; Onegina et al., 2022).

On the other hand, Hu and others (2023), Jin and others (2023), and Rabadán and Triguero (2021) point out that certifications can represent a disadvantage for small farmers and small businesses because many retailers require their suppliers to be certified in a recognized standard, which represents a cost if desired. Enter export markets, which reduces their production volume and increases the possibility of exiting the market.

ORGANIZATIONAL INNOVATION

When talking about innovation, one should not only think about technological issues, but this concept can also refer to various aspects such as processes, products, marketing methods, or the organization itself. Organizational innovation is a non-technological innovation that helps organizations adapt to the environment; it implies the generation of new practices, processes, and structures, new skills, improvement of communication and decision-making, and the creation of new positions and strategic alliances (Lozano & Robles, 2022).

Arraut (2010) defines innovation as "the driving force that drives companies towards ambitious long-term goals and that leads to the renewal of organizational structures" (p. 24). Avila and Morales (2019), Garcia and others (2021), Martínez and Padilla (2020), and Ramírez and Ampudia (2018) highlight the classification of innovation made in the Oslo Manual proposed by the Organization for Economic Cooperation and Development (OECD), where it is divided into four types:

> 1) Product innovation: the introduction to the market of a new or improved product or service implies changes in its characteristics.
> 2) Marketing innovation: a new marketing method that highlights the product's price, presentation, or differences compared to others to increase sales.
> 3) Process innovation: changes or new manufacturing or distribution processes or methods that are more productive, efficient, reduce costs, or improve product quality.
> 4) Organizational innovation: It is oriented towards changes and improvements in the internal practices of the organization, human resources management, and any action that helps to increase knowledge management, employee productivity, and cost reduction.

Jia and others (2018) define organizational innovation as implementing new organizational structures, practices, and processes essential to achieving business growth and sustainability over time. Afcha (2011) postulates that it is the product of an evaluation of companies about their environment, that is, their strengths, weaknesses, opportunities, and threats, and in response to this analysis, companies generate changes that allow them to reconfigure themselves to meet the needs.

Market demands efficiently and gain a competitive advantage over competitors. It coincides with Lozano and Robles (2022), who consider that organizational innovation contributes to the growth and competitiveness of companies since it is linked to the ability to respond to market demands. In turn, organizational innovations are grouped into three categories that may or may not coincide. See Table 3.

Table 3
Organizational innovation categories

Organizational innovation categories	Indicators
Organization management practices	Work direction and management
	Strategic planning
	Study and search for new markets
	Quality management
	Environmental management
	Health and security management
	Financial management
	Employee development
	Flexible work
	Decision making
	Innovation and development
	Knowledge management
	Managerial leadership
Structure of the organization	Organizational forms
	Work division methods
	Organizational policies
	Labor structure
	Creation of positions
	Definition of roles and responsibilities
	Staff Pick
	Training
	Promotion and incentive policies
	Motivation
	Diffusion
External relations	Sales
	Service and customer support
	collaboration with clients
	Commercialization
	Acquisitions
	Relación con proveedores
	Associativity with public or private institutions
	Relationship with competitors
	Relationship with government

Source: Own elaboration based on Arraut (2008); Ávila and Morales (2019); García and others (2021); Martínez and Padilla (2020); Pérez and others (2022); Ramírez and Ampudia (2018).

ORGANIZATIONAL QUALITY AND INNOVATION COMPETITIVENESS TOOLS

Innovation and quality management influence an organization's competitiveness (Bonales et al., 2015). The literature indicates that quality management is related to the competitiveness of the organization since implementing quality management systems promotes continuous improvement, the creation of training programs, teamwork, leadership, innovation, motivation, new ways of working, and the focus on customer satisfaction, which gives organizations a competitive advantage (Reyes et al., 2022).

It is also shown in the literature analysis that innovation is a crucial strategy to achieve the competitiveness of companies (Martínez & Padilla, 2020). It is worth noting the point of view of Zúñiga-Collazos (2016) on the importance of understanding organizational innovation not only as changes in organizational structures and employee practices but also the strategic approach in the direction and management of the organization since the way of running an organization can make the difference between being competitive or not. Business competitiveness has been defined in various ways, including:

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> *"The company's ability helps the organization offer products and services that know specific quality standards at competitive prices in local and world markets and provide an adequate return for the resources used or consumed in their production." (Oyarce, 2013, p. 60).*
> *"The company needs to produce more attractive goods and sell at better prices or reduce costs: cost system, market and customer management, productivity, associativity, and others" .(Cabrera et al., 2011, p. 37)*

The concept of competitiveness or competitive success is closely linked to the concept of organizational performance; in fact, the generation of income produced by competitive advantages will result in higher performance and, therefore, a better relative position of the company concerning its competition (Martínez et al., 2010, p. 175). According to various authors, Table 4 lists some of the main organizational competitiveness strategies and their advantages.

These ideas show that organizations immersed in a complex and changing context must be competitive in the market through innovation practices and continuous improvement that incorporate and manage the needs and expectations of all interested parties around the organization since "the companies that do not innovate will soon be caught up and surpassed by their competitors" (Rodríguez et al., 2014, p. 83).

Table 4
Strategies and competitive advantages for organizations

Competitive strategy	Competitive advantage
Quality management/certifications	Products and services that meet the quality standards specified by the client.
Innovation	More efficient, more attractive products, processes, and services.
Competitive prices	Increased market share and sales.
Technology	Technical progress, increase in productive efficiency.
Costs reduction	Adequate resource management, financial management and greater profitability.
Market and customer management	Knowledge of the market, customers and distribution channels, market research, market penetration.
Productivity	Greater productivity implies greater responsiveness or delivery of results.
Corporate social responsibility	Positive impact on the social, economic, and environmental sphere of society, public image, reputation of the company.
Association	Cooperation between various public and/or private organizations that promotes the development of the organization.
Intellectual capital	Trained, motivated, committed human team.

Source: Own elaboration based on Musik and Romo (2004); Bada and others (2013); Bonales and others (2015); Cabrera and others (2011); Ramírez and Ampudia (2018).

Being competitive is, for Rambe and Khaola (2023), producing and selling quality products, both in local and international markets, at competitive prices that generate returns for the organization since the quality of the product improves its position in the market, its reputation and increases the market share of the company.

Organizations' changes require strategies that position them in a degree of advantage over their competitors to achieve their survival and a sustained position over time. Within these strategies, quality management and social responsibility become competitive advantages of differentiation for companies, allowing them to develop high-quality products and services, as well as focus on aspects of social and environmental well-being (Arraut, 2010; Heras et al., 2008; Ramírez & Ampudia, 2018).

For Núñez-Lira and others (2023) and Sierra-Parada and others (2022), organizations that have carried out an analysis of their environment (strengths, opportunities, weaknesses, and threats) will have the advantage of knowing their suppliers, customers, competitors, and substitute products, and will be able to make strategic decisions, innovate and define

objectives that adapt to the changes, and will be the ones with the most significant possibility of increasing their competitiveness.

METHODOLOGY

The research design is qualitative, non-experimental, and descriptive in scope. The unit of analysis was the organization that produces table grapes in the state of Sonora. The population is made up of 33 organizations. The sample size was obtained by simple random sampling for a finite population's equation where all the elements have the same probability of being chosen (Hernández et al., 2014) through the following formula:

$$n = \frac{Z^2 * N * p * q}{[E^2(N-1)] + [Z^2 * p * q]} \ (1)$$

where:
n= sample size
N= population size
Z= statistical parameter that depends on the confidence level
E= estimation error
p= probability of success
q= (1-p) = probability of failure

The following values were established:
90% confidence level, *Z* value is 1.645
The population *N* is 33 organizations
The estimated error *E* was set to 7%
The probability of being chosen *p* is 97%
The probability of not being chosen *q* is 3%

The resulting sample size was 11 organizations. The study subjects were the managers or persons responsible for some high command with general organization knowledge. The selection procedure of the organizations was based on suitability; that is, the sample was made up of the available or arranged elements (Elorza, 2008).

The elaboration of the data collection instrument consisted of a semi-structured interview script comprising forty items. Through this instrument, the interviewer can guide the conversation with the interviewee toward the topics that interest them the most, giving them the freedom to express themselves (Díaz-Bravo et al., 2013).

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A committee of experts carried out the instrument's content validity, and later, a pilot test was carried out applying the instrument to four managers of organizations that export agricultural products other than table grapes. The information collection stage was carried out from November 2021 to April 2022.

The interviews were processed through the MAXQDA v. 2022 qualitative data analysis software, through which the coding and categorization processes were carried out, the information was organized, and data matrices were obtained that helped to relate the information.

The categorization process was deductive-inductive (Vives & Hamui, 2021), allowing the actions or events related to the same topic to be classified (Osses et al., 2006). First, the theoretical framework was used to define the categories at the macro level; that is, it started from pre-established categories (deductive) such as innovation, organizational innovation, quality strategies, and competitiveness.

Subsequently, the text was reanalyzed to determine the similarities and differences within the categories and establish emerging categories and subcategories (inductive) such as types of innovation, quality management strategies, incorporation of certifications, type of certifications, quality characteristics of the grape, safety characteristics of the grape, compliance with environmental and social management requirements, competitive advantages. The text was repeatedly analyzed, and the theoretical saturation of the categories was reached when significant information or properties that contributed something new were no longer found (Osses et al., 2006).

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The coding process was open type (Vives & Hamui, 2021); that is, the data was segmented line by line, word labels were placed, and the text was repeatedly analyzed to group the codes into the established categories.

RESULTS

Innovations incorporated by organizations.
Innovation is present in the Sonoran table grape system through various strategies, including product innovations, processes, marketing, and organizational innovation aimed at complying with the characteristics of the grapes the client demands (see Table 5).

Table 5
Innovations incorporated by Sonoran table grape organizations

1. Incorporation of new varieties
2. Incorporation of certifications
3. Incorporation of new technologies
4. Use of shade mesh
5. Market research
6. Transport and cold chain
7. Use of nutrients from the roots
8. Pruning techniques
9. Hiring of advisers
10. Planning ahead

Source: Own elaboration based on results of interviews.

Graph 1 shows the percentage of organizations that have implemented each innovation. The investigation results show that 45% of the producers have incorporated new varieties of grapes. Among the reasons are that they are most productive, provide a higher yield, have constant production year after year, better withstand climate changes, are more resistant, more fruitful, take a higher degree of sweetness, have higher nutritional values and distinctive flavors, all previous improves its quality and competitiveness. The rest of the organizations continue producing traditional grape varieties.

Graph 1
Percentage of organizations that have implemented each innovation.
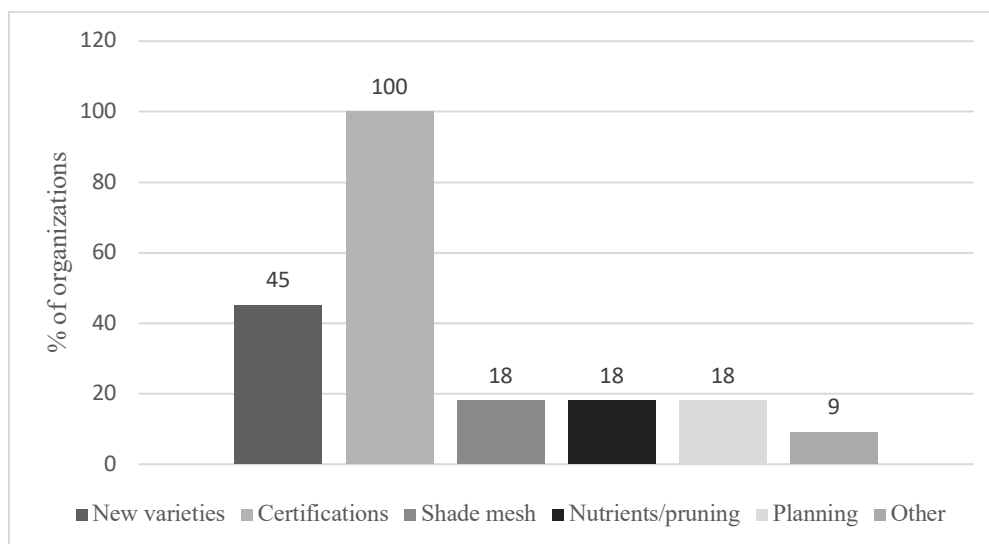
Source: Own elaboration based on interview results.

In the case of incorporating certifications, 100% of the organizations have some certification. The 18% of the organizations have applied strategies such as the use of shade mesh to protect

crops, the use of nutrients from the roots and new pruning techniques to obtain the required size and sweetness, production planning with activities such as programming from a previous year, marketing strategies before the strong season or saving grapes if demand conditions are not favorable.

The 9% of the organizations carry out other actions such as the use of technological applications to monitor crops on a day-to-day basis, market research to determine customer demands and consumption trends, improvements in the transport and cooling chain of the grape that extend its shelf life, contracting external advisors who are experts in quality issues, safety, marketing, legal aspects, among others.

Determinants of a Quality Grape
Table grape-producing organizations have clearly defined the quality characteristics their clients require to enter the export market (the primary market for table grapes in Sonora). See Graph 2.

Graph 2
Main quality characteristics of table grapes

Quality feature	% of organizations
Size	100
Brix/sweetness	73
Bunch conformation	64
Color	55
Minimal defects	45
Firmness	36
Rachis	18
Packing	18
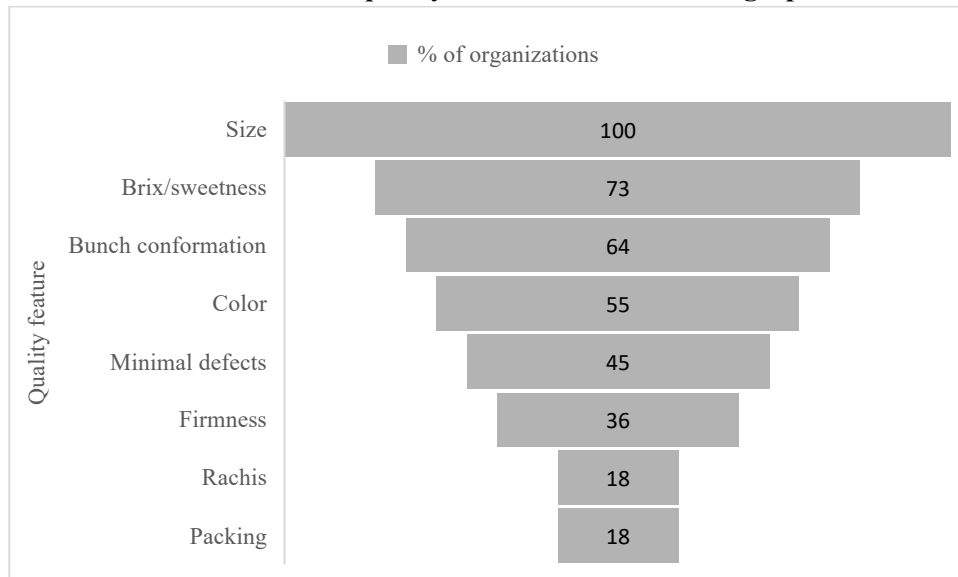
Source: Own elaboration based on interview results.

It should be noted that 100% of the producers mention the size of the berry as the primary attribute required by the client; that is, the size is required according to the grape variety. It can range from 9/16 to 15/16 of an inch in diameter. The flavor depends on the grape variety, measured in degrees Brix. In general, they are handled from 16 to 23 degrees Brix.

The sweetness is most significant at a greater number of degrees. The conformation of the bunch refers to the fact that it is complete, that it does not break apart, that there are no holes to be seen, and that it is not too tight. Within the color attribute, it is requested that it be

uniform. Minimal defects refer to grapes not bearing scars, streaks, wrinkles, blemishes, sunburn, cracks, ruptures, or rotten berries.

The firmness indicates that the grape has crunchy pulp. The rachis must be green and mold-free, which shows that the fruit is fresh and has not lost moisture. The packaging is essential for the client since it must contain the exact weight that is requested, as well as the type of container, either "clamshell" or plastic bag.

Organizational innovation practices related to quality.

The results showed that 100% of the organizations had implemented actions for planning, controlling, assurance, and improving both quality and safety, including incorporating certifications, standards, or distinctive. These allow compliance with the physical characteristics of the product required by the client (see Graph 2), in addition to compliance with aspects related to safety such as hygiene and safety procedures, cross-contamination control, pest control, soil health, use of permitted fertilizers and pesticides, equipment cleaning or product traceability.

Table 6
Certifications of grape producing organizations

Of quality and safety	Of social responsibility
Global GAP	Distintivo Empresa Agrícola Libre de Trabajo Infantil (DEALTI)
Primus GFS	Fairtrade
USDA and FDA requirements	SMETA
Walmart Certifications	GRASP
Kroger Certifications	
FSSC 22000	
SENASICA	
México Calidad Suprema	
CCOF Organic	
OMRI Listed	
Pesticide Residue Free	
Orgánico SAGARPA México	

Source: Own elaboration based on interview results.

A finding was that Sonoran table grape-producing organizations also have invested in incorporating social and environmental responsibility certifications as they have become another requirement of their customers. These cover aspects related to not hiring minors, fair trade, respect for workers' labor rights, health and security, ethical behavior, use of energy, and care of the soil, water, and biodiversity. Table 6 lists the certifications incorporated. It stands out that 100% of the organizations have certifications with a quality and safety approach, and 72% also have social responsibility certifications (see Graph 3).

Graph3
Percentage of organizations that have integrated certifications
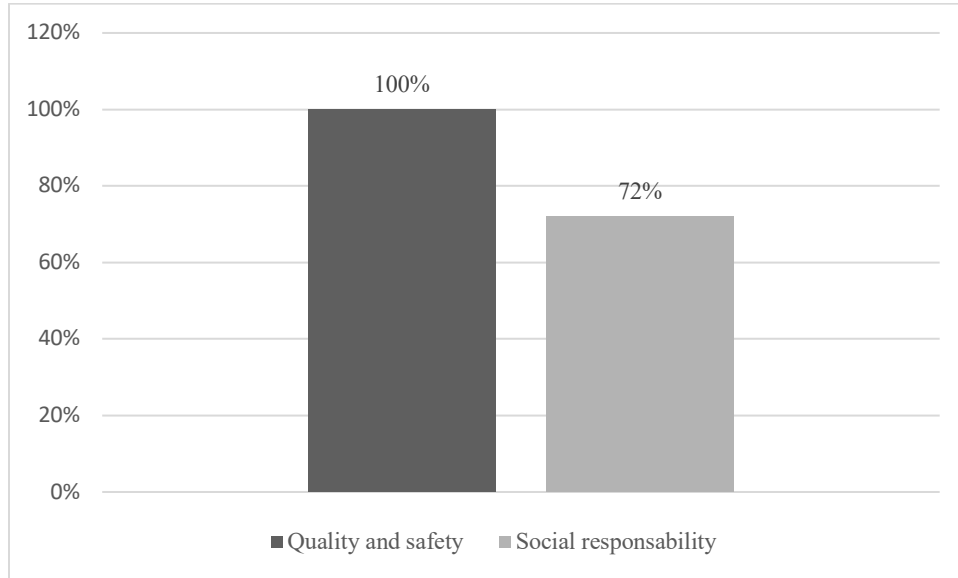
Source: Own elaboration based on results of interviews.

Competitiveness in Sonoran table grape producing organizations
Regarding the competitiveness factor, the interviewees were asked questions about the competitive advantages they perceived in their organization because of the implementation of the quality management strategies they mentioned. The responses stand out: compliance with quality standards, innovation, staying in the market, customer satisfaction, increased sales, and adaptation. Figure 1 shows the model that guides this research, with the concentration of all the answers.

Quality and Organizational Innovation: Competitiveness Tools in the Table Grape System

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Figure 1
Quality and organizational innovation as competitiveness tools

| Innovation →	Quality and organizational innovation →	Competitiveness

Innovations incorporated by organizations:

- Incorporation of new varieties.
- Incorporation of certifications.
- Incorporation of new technologies.
- Use of mesh shadows.
- Market research.
- Transport and cold chain.
- Use of nutrients from the roots.
- Pruning techniques.
- Recruitment of advisers.
- Planning.

Incorporation of certifications and standards:

* Quality and safety

- Size, sweetness, conformation of the cluster, color, minimum defects, firmness, rachis, packaging.

- Hygiene procedures, cross-contamination control, pest control, soil and water health, permitted fertilizers and pesticide use, equipment cleaning, and product traceability.

* Social Responsibility

- No hiring of minors.
- Fairtrade.
- Respect for labor rights.
- Health and security of workers.
- Ethical behavior.
- Use of energy.
- Care of the soil, water, and biodiversity.

Competitive advantages:

- Offer products that meet quality standards.
- Customer satisfaction.
- Product differentiation.
- Increase in sales.
- Stay in the market.
- Increase in market share.
- Adaptation.
- Knowledge of markets and customers.
- Other.

Source: Own elaboration based on results of interviews.

DISCUSSION

According to Núñez-Lira and other (2023) and Sierra-Parada and others (2022), organizations that analyze their environment have the advantage of knowing their customers, suppliers, and competitors, which gives them the advantage of being able to establish strategies to direct the company towards the demands of new markets. In this sense, the Sonora table grape-producing organizations have the advantage of knowing their customers, marketing companies such as Walmart, Kroger, and Costco, and their competitors, large

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South American grape producers who also export to the USA and the same state of California, USA. Grape growers are in a constant relationship with their environment.

They are in a dynamic and competitive environment and constantly seek to satisfy customer demands. The environment is dynamic in that production depends a lot on weather factors, which affect the product's yield, quality, and sale, coupled with strict safety and quality standards (Rincón et al., 2015).

This adaptation to the environment generates changes in organizations, according to Afcha (2011), including incorporating various innovation strategies. The interest of this study focuses on organizational innovation strategies. According to Ávila and Morales (2019), García and others (2021), and Ramírez and Ampudia (2018), quality management practices are part of organizational innovation since they originate from external customers.

The results of this research show the types of innovations incorporated by organizations, where product and organizational innovations stand out (Arraut, 2008; Ávila & Morales, 2019; García et al., 2021; Martínez & Padilla, 2020; Pérez et al., 2022 and Ramírez & Ampudia, 2018).

Product innovations are due to incorporating new grape varieties in 45% of the organizations that made up the sample. Organizational innovations are due to the incorporation of certifications in 100% of the companies, which are framed in quality management activities as management practices of the organization (Ávila & Morales, 2019; García et al., 2021; Martínez & Padilla 2020; Ramírez & Ampudia 2018).

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The data showed that the incorporated certifications obey 100% quality and safety issues, while others obey social, economic, and environmental sustainability issues (72%). The GlobalGAP and Primus GFS certifications related to quality and safety issues stand out as the most frequently implemented, which coincides with Hu and others (2023).

The certifications and standards related to quality and safety found in this study, such as Global GAP, Primus GFS, FSSC 22000, México Calidad Suprema, FDA, and USDA, allow compliance with physical and safety characteristics of the grape, such as size, sweetness, conformation of the bunch, color, cleanliness, health, and in general that they are suitable for human consumption without generating a negative impact on health (Gómez et al., 2021).

The certifications related to social responsibility, such as DEALTI, Fairtrade, GRASP, and SMETA, allow compliance with demands that have to do with the labor rights of workers, the non-hiring of minors, ethical behavior, and care for the environment, which agrees with Masakure and others (2011). According to De Castro and others (2021) and Jin and others

(2023), distributors of the agri-food industry have expanded the required standards to cover environmental and social management issues. This study has shown that most of the producers of the table grape system have adapted to these requirements (Bonales et al., 2015).

These certifications have contributed to the growth of Sonoran companies and their introduction to export markets in the USA, South America, Europe, and Asia since they represent a guarantee of compliance with the requirements (Aguado et al., 2022; Amaya et al., 2020; Araya-Pizarro & Araya, 2020; De Castro et al., 2021). It coincides with the research by Contreras-Valenzuela and others (2018) on the vid de mesa system of the state of Sonora, where it is revealed that companies have sought a series of certifications and recognitions as a strategic conduct to meet market demand conditions and adapt to the requirements of their customers.

Quality management through certifications and organizational innovation has brought competitive advantages for grape producers, as indicated by the study subjects (Rambe & Khaola, 2023). The competitive advantages mentioned by the study subjects coincide with some of those established in the literature review (Table 4).

Precisely, the competitive advantages of compliance with quality standards and customer satisfaction correspond to a quality management strategy; product differentiation corresponds to an innovation strategy; the increase in sales and increase in market share respond to a competitive pricing strategy, knowledge of markets and customers respond to a market and customer management strategy (Musik & Romo, 2004; Bada et al., 2013; Bonales et al., 2015; Cabrera et al., 2011; Ramírez & Ampudia, 2018).

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The competitive advantages mentioned, such as staying in the market and adapting to the environment, do not respond to a specific strategy in Table 4. However, they are supported by authors such as Núñez-Lira and others (2023) and Sierra-Parada and others (2022). Cruz and others (2020) relate the implementation of quality strategies with the impact on the competitiveness of companies, which empirical data have demonstrated for the table grape system.

CONCLUSIONS

This research analyzed quality management strategies as organizational innovation practices implemented by table grape-producing organizations in Sonora and their relationship with competitiveness. It was possible to determine a list of innovative actions implemented by the organizations. Among them, quality management was analyzed by incorporating certifications and standards as a practice of organizational innovation. It was concluded that

organizational innovation is conceived as an essential practice to generate competitive advantages in organizations since it generates knowledge, learning, and skills that drive decision-making aimed at business success.

Within the certifications, those quality and safety issues are accentuated to allow compliance with the leading quality characteristics of the export grape, which are the size, sweetness, and conformation of the bunch, as well as with the safety demands: clean, healthy products, suitable for human consumption, free of pests and agrochemicals. In turn, they are always awaiting the new requirements that will arise from the client, which makes them in the process of continuous improvement and innovation, such as the incorporation of social responsibility certifications along with quality management systems to deal with aspects that have to do with people and the environment. These quality management strategies influence the adaptation of management practices and the structure and internal processes of the organization, that is, in organizational innovation.

Regarding the impact of quality strategies as organizational innovation on the competitiveness of companies, the perception of producers for having invested in these issues is positive since all related these actions with one or more competitive advantages, among which are compliance with quality standards, innovation, staying in the market, customer satisfaction, increased sales, adaptation, opportunities for improvement, among others, which has cost them a significant investment and great care.

As a recommendation for future research, it is suggested to analyze the impact of other types of strategies in organizations, such as knowledge management, supplier management, organizational leadership, government support, collaboration with universities, international agreements, and treaties on the competitiveness and growth of the sector.

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Tacit and Explicit Knowledge: Drivers of the Competitiveness of Universities

Conomímiento tácito y explícito: conductores de la competitividad de las universidades

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ABSTRACT

This research examines these two cognitive dimensions through a confirmatory factor analysis to determine whether their relationship with the competitiveness variable is suitable for generating genuine competitive elements. These variables have been reviewed based on available cutting-edge literature and collected a priori from Mexican higher education institutions. Cognitive elements serve as precursors to competitiveness; however, comprehending this necessitates an analysis of the cognitive asset from a dimensional perspective, wherein formal and informal knowledge criteria are scientifically established as explicit and tacit knowledge.

Keywords: Knowledge Management, Competitiveness, Universities

JEL code: I23, O31

Tacit and explicit knowledge: drivers of the competitiveness of universities

RESUMEN

Esta investigación analiza a estas dos dimensiones cognitivas a través de un análisis factorial confirmatorio con la finalidad de establecer si su relación con la variable competitividad resulta adecuada para la generación de elementos competitivos reales. Dichas variables han sido revisadas a partir de la literatura de frontera disponible y recolectadas a priori en instituciones de educación superior mexicanas. Los elementos cognitivos son precursores de la competitividad, no obstante, para entenderlo se requiere analizar al activo cognitivo desde una perspectiva dimensional, en las cuáles se establece el criterio del conocimiento formal e informal, más científicamente hablando, del conocimiento explícito y tácito.

Palabras clave: Gestión del conocimiento; competitividad; universidades

Código JEL: L2, I23, O31

INTRODUCTION

The university serves as the cornerstone of the framework underpinning the knowledge society. Processes of innovation and shifts in paradigms unfold within institutions of higher education and can shape activities across various sectors. While higher education institutions represent the most well-suited link in the cognitive chain, it is imperative to pinpoint the factors that create enduring changes within them.

It is imperative to understand that within the marketplace, functioning as a generator of demand, institutions must have the ability to cultivate distinctive advantages from their available resources (Štimac & Šimić, 2012). Although competitive development may lean towards tangible capabilities like profitability or technological advancement (Kovalenko, 2013), the truth remains that the abundance of intangible resources, such as knowledge, provides a more viable approach to scrutinizing the assets at the university's disposal.

In a broader sense, cognitive resources can be approached from two perspectives: tacit knowledge and explicit knowledge. Both bear significance as components, and their influence contributes to the internal advancement of the organization. However, despite their prevalence within the institution, their comprehension and utilization still need to improve within the context of higher education establishments.

While both forms of knowledge are exploitable, their inherent characteristics should be clearly defined. On the one hand, Tacit knowledge can be described as the insight of human talent (Somech & Bogler, 1999). Explicit knowledge, conversely, can be perceived as the reservoir of the organization (Harsh, 2007). Hence, for a higher education institution, identifying and utilizing these types of knowledge can function as vectors for transformation and enhancing internal advantages, solidifying a process geared toward cultivating competitive edges that set it apart within the university environment.

The central aim of the presented research is to scrutinize whether cognitive factors, encompassing both tacit and explicit knowledge, constitute foundational components for competitiveness within higher education institutions. Additionally, the research seeks to identify the components inherent in each category and the roles they take on. The study draws upon the realities of the organizational landscape of higher education institutions in western Mexico.

THEORETICAL FRAMEWORK

Universities and Knowledge Management

Knowledge management can be comprehended as one of the foremost concepts within the administrative sphere (Niqresh, 2021). Its standardized implementation in organizations, particularly within the private sector, has contributed to the augmentation of intangible assets, a term commonly employed in this context.

The potential it bestows upon organizations has effectively influenced the adoption of tailored techniques within tertiary education institutions. The orchestration, coordination, utilization, transfer, and exploitation of knowledge constitute pivotal factors in the success of those actively engaging with it (Mostofa et al., 2023).

From the standpoint of the knowledge society, it is widely acknowledged that the central objective is to contribute to maximizing organizational benefits (Raudeliuniene & Matar, 2022). It entails the premise that knowledge should serve as the bedrock for decision-making, regardless of the asset's nature, but rather its potential.

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Building upon this contextual foundation, universities have diligently sought and embraced knowledge management models that have heightened engagement among their constituents—faculty, students, and administrators—and have also instituted models for harnessing the cognitive resources they inherently and recurrently produce (Rodríguez-Ponce et al., 2022).

Notably, universities function as natural cognitive entities, adeptly managing diverse facets of knowledge. Moreover, knowledge generation exhibits the same level of diversity as the existing domains within the institution (Poonam & Rowley, 2018).

To fully apprehend this concept, it is imperative to recognize that the fundamental role of higher education institutions is to generate and disseminate knowledge within society (Alves & Pinheiro, 2022). In addition to the points mentioned above, the role of knowledge for such organizations constitutes a pivotal element for their growth and development while facilitating an approach to intangible capitalization (Elezi, 2021).

This multifaceted process is achieved by leveraging the institution's internal resources, maximizing human capital utilization, and furthering the transmission of knowledge to sectors where it can be harnessed, thereby providing valuable feedback to the higher education institution (Sedziuviene & Vveinhardt, 2009).

Metaphorically speaking, the university assumes a central role within the knowledge economy (Demchig, 2015). Consequently, when viewed through a business lens, its outputs can be regarded as assets with the potential to generate profitability.

From this perspective, knowledge management models embody a strategic administrative element whose impact generally yields positive outcomes within university units and among their human resources (Mahdi et al., 2018). Their implementation should be undertaken most efficiently, capitalizing on the prevailing organizational structure. As posited by Hartono and others (2023), knowledge management is best understood as a flexible and structured framework that fosters the enhancement of institutional departments.

Knowledge Management and Competitiveness in Universities
There exists a classical perspective concerning organizational administration in which tangible resources, particularly those of a financial nature, are deemed the cornerstone for crafting competitive strategies (Ogutu et al., 2023).

However, upon contemplating the realities of an era where every organization establishes growth benchmarks predicated on effectiveness and efficiency, it becomes evident that knowledge is their most prized asset. Thus, integrating this asset with the internal and external environment enables the organization to harness it to its advantage (Xiao, 2006).

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Organizations, especially those within higher education, must adapt to their surroundings and reshape their preconceived visions to enhance themselves by developing internal and external cognitive components. By doing so, their environment can be enriched further, offering a tangible assurance of continuous administrative progress (Schiuma et al., 2012).

Furthermore, prior investigations have demonstrated that universities possess an inherent potential for cultivating attributes such as quality, innovation, and functionality. These focal attributes serve as the bedrock for well-established competitive advantages while effectively managing the knowledge generated in the institution's daily affairs (Sachin & Manoj, 2019).

This phenomenon becomes exceedingly intriguing when observed in action. Through its implications, prospective factors contributing to improved internal relations can be identified, offering a lucid and succinct prospect of attaining genuine competitive edges.

Superficially, a delicate thread may intertwine knowledge management and competitiveness processes. Nonetheless, the cohesiveness of these concepts possesses intrinsic robustness, as it capitalizes on existing resources, a concept traditionally construed within the framework of competitive advantage. Technological and economic elements evolve into indispensable

support pillars for knowledge to substantively emerge as the principal contrasting factor (Ordoñez et al., 2018).

Based on this vantage point, the challenge confronting universities, as pinnacles of intellectual contemplation and knowledge genesis, is rooted in the necessity for their global stature to be anchored upon transformational underpinnings that confer a fitting standing vis-à-vis their international counterparts.

Consequently, antiquated models of a purely tangible nature should be relegated to the past, enabling knowledge to be recognized as an element of strategic import (Vasiliev, 2022). Thus, a positive impact reverberates within the institution, harnessing diverse strands of knowledge and their origins to the utmost. In effect, appropriating implicit and explicit factors becomes an integral facet of astute organizational resource utilization and, naturally, realizing the sought-after competitive growth (Kireeva et al., 2018)."

Tacit and Explicit Knowledge.
The importance of actively utilizing knowledge within organizations has been emphasized, turning it into a valuable resource in various administrative structures (Li & Zhao, 2023). Its configuration enables continuous interaction between the organization's interior, exterior, and its members (von Krogh, 1998). Through these mechanisms, a precious function is generated, with an impact that can vary in visibility and transferability, ranging from nearly imperceptible to very evident (Magnier-Watanabe & Benton, 2017).

The initial conceptualizations that framed the current meanings of tacit and explicit knowledge were shaped by the research of Michael Polanyi in the mid-20th century. These empirical approaches resulted in a specific classification where not only definitions were generated but also the elements that constitute each dimension. Thus, tacit, and explicit knowledge paved the way for functional cognitive integration in an SECI model (Nonaka & Takeuchi, 1995).

It was the first time that knowledge was analyzed not only epistemologically but also from a strategic administrative position whose benefits would be fully reflected in the operational elements of the organizations implementing it (Houessou et al., 2023).

Consequently, the elements of each type of knowledge can vary based on the type of organization that exists. That is why a comprehensive analysis of the specific factors provided by each dimension was required to perform instrumental measurement in higher education institutions.

Directly referring to tacit knowledge, is to speak about the interpersonal interaction of individuals within an organization (Sial et al., 2023). Its elusive and almost cryptic nature

has been deeply studied. Its existence has made it a necessary factor for organizational innovation and even for enhancing the performance of internal processes (Houessou et al., 2023).

According to the review of various theoretical and conceptual approaches, it was concluded that three factors constitute it within the framework of higher education institutions: organizational values, organizational wisdom, and technical skills.

Organizational values refer to the specific characteristics that organizations propose in their future vision and are interpreted empirically by employees (Gil-Cordero et al., 2023). These elements may have a purely explicit backing. However, their use and dissemination constitute a completely individual belief, which generates ambiguity in their application and understanding by those who execute them (Rubio-Andrés & Abril, 2022).

Regarding organizational wisdom, it establishes a hierarchy concerning the activities established to improve the personal growth elements of the individual (Reber, 2013; Roediger, 1990). Based on this factor, it becomes possible to establish measurement criteria for individual learning. Through the concept of higher-level learning, the determination of wisdom can be reached (Stelmaszczyk et al., 2021), implying that the individual has been able to carry out the assigned task in a specific, clear, and skillful manner.

As for technical skills, studies have shown that they constitute an individual's expertise in generating functional responses to fortuitous events (Alzhrani et al., 2023). Their utilization is closely linked to the everyday aspects of the job position. According to research criteria in various fields, individuals who interact more with external clients tend to be more efficient in this type of skill.

On the other hand, it is necessary to refer to tacit knowledge. Its essence is materialized in the transfer of knowledge and its concrete recording in databases, organizational documents, and formal elements (Gamble, 2020). In this context, the organization can leverage the gathered elements fully, thereby promoting organizational learning (Nawaz et al., 2020).

Measuring the elements constituting tacit knowledge in the proposed research model identifies four factors that have implications for universities. Each of them provides an approach to the expected formality in this dimension. The considered factors are knowledge acquisition, knowledge transfer, innovation, and problem-solving.

Initially, it is necessary to identify the sources from which knowledge is obtained. Whether formal or informal, organizational design requires that organization employees clearly

identify which documents provide more specific information and are therefore highly usable (Vega, 2009).

Knowledge transfer, the second factor of explicit knowledge, has been recognized as a competitive growth element in organizations (Situmorang & Japutra, 2024). This activity is the most human one that exists since the formation of human resources can be found in every organization (Wang et al., 2023). It is even more pronounced in institutions whose primary role is education.

Even though they have been separated in the model due to methodological needs, the reality is that innovation and problem-solving go hand in hand. Based on these two factorial dimensions, the potential of explicit knowledge can be envisioned. Various organizational levels can benefit from them, so measuring them can lead to tangible efficiency elements (Ganguly & Talukdar, 2019).

METHODOLOGY

The research design is based on an in-depth descriptive review, establishing scientific criteria to connect existing theories of knowledge management and competitiveness, with a particular focus on higher education institutions. Emphasis is placed on conducting a documentary search in digital databases, incorporating classical and cutting-edge elements.

This study is non-experimental, comprising primary and secondary data compilation. A correlational approach is employed to develop and analyze the variables used. The primary intention is to identify common grounds and intersections within the model used. Subsequently, this model serves as the foundation for creating a quantitative measurement instrument derived from confirmatory data analysis models employing structural equations.

The model's outcomes are based on the quantitative data produced by the program and the correlations found among the analyzed variables. Consequently, the explanation of the model goes beyond the subjectivity of the theories utilized.

Research Outcomes
The analysis of the elements constituting the dimensions referred to as 'tacit knowledge' and 'explicit knowledge' was undertaken, along with modeling their correlations as observed in AMOS. The resulting diagram is provided below. Due to the substantial number of variables, it is included in the document purely for illustrative purposes; the correlations and outcomes will be reviewed explicitly in this section.

MERCADOS *y Negocios*

Figure 1
Correlation Diagram Modeling.
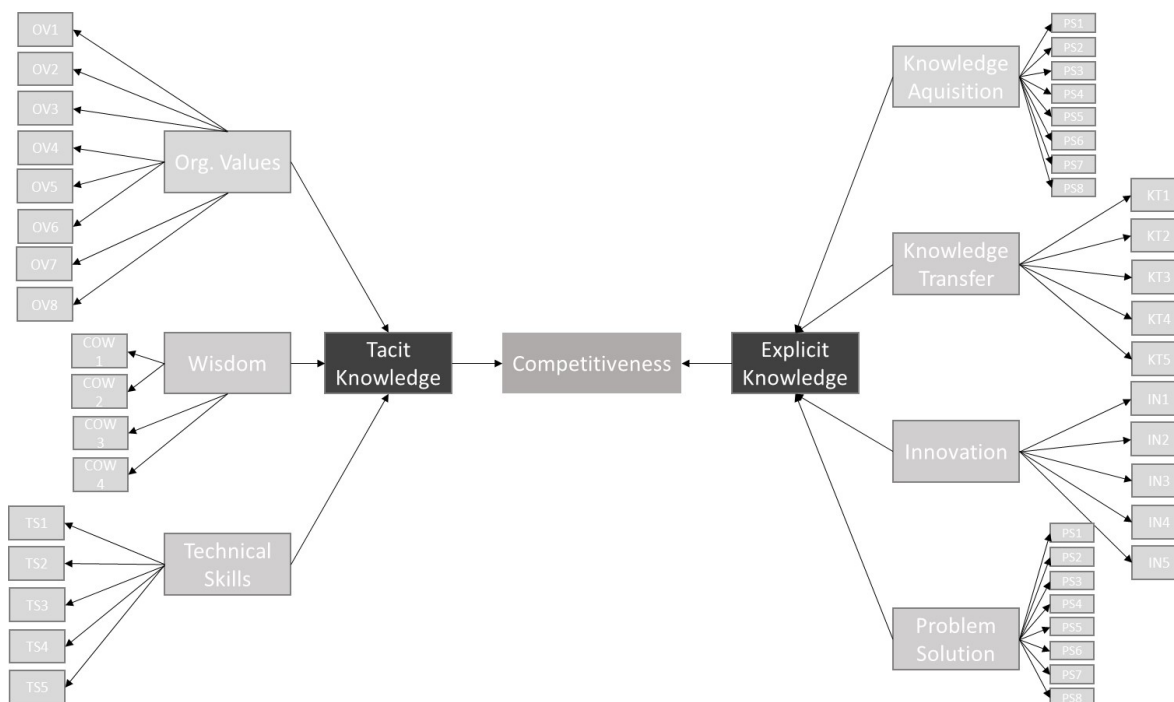
Source: Own elaboration.

To adequately analyze the presented model, an initial assessment of questionnaire reliability was conducted. The selected sections comprise 43 items, designed on a Likert scale for enhanced control in multivariate studies. Based on the Cronbach's Alpha result, the model exhibited a reliability value of 0.992, equivalent to 99.2%, indicating its validity for establishing interpretive criteria.

Each of the variables represented in the model corresponds to an item from the sections of the questionnaires titled 'Tacit Knowledge' and 'Explicit Knowledge.' These elements will be cross-referenced through a confirmatory factor analysis in the AMOS software. The dimension of 'Competitiveness' is set as the independent variable. To review the nomenclature for each item, please refer to Appendix 1.

The values obtained from these cross-references will be expressed in Table 1. Each name in this graphical representation signifies an individual item from the questionnaire. The analysis intends to ascertain the most pertinent elements in terms of factors and establish a quantitative assessment of the elements that can foster competitive advantages in higher education institutions.

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Table 1
The adjusted model of primary correlations Tacit and explicit knowledge versus competitiveness.

Dimension	High Value	Medium Value	Low Value	No Related
Campus Divisions	0.868			
University Regulations	0.852			
Social Impact Projects	0.815			
Mutual Support	0.805			
University Management	0.796			
Labor Union Needs	0.787			
Campus Union Rep	0.761			
High Profitability Projects	0.743			
Government Investors	0.741			
University Academics	0.739			
Democracy	0.72			
Academic Planning	0.717			
Alum Employers	0.711			
Equity	0.711			
External Experience of the Teaching Staff	0.708			
Labor Union	0.703			
University Data Bases		0.699		
Forums		0.698		
Honesty		0.694		
University Executives		0.693		
Solidarity		0.681		
Academic Develop		0.68		
Online Platform		0.667		
Private Investors		0.662		
Teaching Needs		0.66		
Classroom Tech		0.659		
Academic Training		0.642		
Entrepreneurship		0.628		
Justice		0.621		
Social Development		0.614		
Equality		0.607		
Respect		0.604		
Peace Education (Inclusion)		0.601		
Entrepreneurship recruitment		0.6		
Professional Experience Staff			0.592	
Professors Problems			0.568	
Scientific Sources			0.538	
Professional Training			0.527	
Administrative Staff				0.493

Campus Department Chief				0.485
Professors				0.464
Academic Freedom				0.455
Students				0.374

Source: Own elaboration.

The values derived from the analyzed model have been categorized into four distinct types. Higher values represent the most significant opportunities for fostering competitiveness. In this analysis, elements exhibiting correlation levels ranging from 0.89 to 0.70 were taken into consideration, following a descending model.

Similarly, elements displaying moderate values indicate the potential for competitive processes, though adjustments or opportunity analyses are required to establish competitive advantages. For this study, elements with values falling between 0.59 and 0.5 were given consideration. In the case of elements with lower values, they can sporadically trigger competitiveness, and their utilization within the environment may not always be imperative.

Conversely, values lacking practical application are deemed unrelated to the competitiveness factor. While they may hold importance for the organization, they do not constitute essential components for the desired competitive edge.

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As indicated in Table 1, the primary drivers for generating competitive advantages predominantly center on internal facets of the university. The most notable factor is the "campus divisions," with a numeric value of 86.6%, underscoring the need for an in-depth review of this sector to become a catalyst for competitiveness.

Other noteworthy elements encompass highly profitable projects and public investment participation, both boasting a correlation value of 70%. It is important to underscore that in these instances, the projects' potential is realized through meticulous evaluation and appropriate financial incentives, a pivotal requirement.

Moreover, it is imperative to acknowledge that correlation between environmental factors does not inherently denote optimal performance. In certain instances, a functional overhaul is indispensable to attain competitive development.

Table 2
Main components analysis

	Independence Model
CMIN/DF	10.7
RMR	0.004
RMSEA	0.015
Hoelter	0.5

Source: Own elaboration.

Except for the first component, CMIN/DF, the values fit a normal model, which indicates that the correlations given in the table above are valid for generating the interpretation of the model. With this, the analysis created from a structural equation model is entirely satisfactory.

Even though there may be other tables of components, the reality is that these four presented are sufficient to establish the validity of the variable intersections that were generated.

It is important to mention that the complementary values can be useful when considering specific variables in generating competitive advantages in higher education institutions.

This facilitates the understanding of the competitive advantages necessary to maximize their presence in international rankings, thus promoting the growth of the university institution.

CONCLUSIONS

The study conducted provides valuable insights into the process of generating competitiveness for higher education institutions. The proposed dimensions, "tacit knowledge" and "explicit knowledge," underwent analysis, and the results presented in the previous section yield conclusive elements.

Firstly, regarding the internal segment of universities, it was discovered that the main factors contributing to the development of competitive advantages lie within the university itself. This highlights the fundamental role of university resources, dependencies, and representations in determining their competitive position.

Secondly, the importance of "campus divisions" was recognized, particularly in the departmental model of the university. Among all the elements, "campus divisions" emerged as the most critical factor, with a significant numerical value of 86.6%. This underscores the

need for a comprehensive review and improvement of these divisions to harness their potential as a key driver of competitiveness.

Thirdly, the study emphasized the significance of private and government investment in promoting profitable student-generated projects. Such projects showed notable importance, with a correlation value of 70%. This emphasizes the necessity of carefully evaluating and providing appropriate economic incentives to maximize the benefits of these projects, thereby enhancing the university's competitive advantage.

The study also revealed that the mere correlation between elements within the university environment does not guarantee optimal performance. Positive relationships between certain factors do not necessarily translate into their maximum performance. Therefore, a strategic focus on functional restructuring becomes crucial for effective competitive development.

In conclusion, the results suggest that to strengthen its competitive position, the university should focus on internal aspects, particularly "campus divisions." Additionally, it should prioritize the appropriate evaluation and support of highly profitable projects and government investments. However, it is essential to recognize that mere positive correlations between factors are insufficient to ensure maximum performance. A well-planned functional restructuring approach is necessary to unleash the university's full competitive potential.

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Overall, considering these key findings and implementing strategic actions accordingly can enhance the university's competitive advantages, improve its international rankings, and facilitate its growth as a distinguished higher education institution.

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APPENDIX

TACIT KNOWLEDGE AND EXPLICIT KNOWLEDGE QUESTIONNAIRE

SECTION B.- KNOWLEDGE MANAGEMENT

B1. TACIT KNOWLEDGE

Organization Values - OV
Your community always participates in:

		1	2	3	4	5	N/A
OV1	Democracy						
OV2	Fairness						
OV3	Honesty						
OV4	Justice						
OV5	Equality among individuals						
OV6	Solidarity						
OV7	Education for peace						
OV8	Respect						

Organizational Wisdom
Does your institution always

		1	2	3	4	5	N/A
COW1	Focuses on meeting the individual needs of the teachers.						
COW2	Focuses on meeting the collective needs of teachers.						
COW3	Conducts forums for teachers to express themselves						
COW4	Supports the development of collective knowledge						

Technical Skills
Does your institution, always…

		1	2	3	4	5	N/A
TS1	Recognizes the academic experience of the teacher						
TS2	Recognizes the professional experience of the teacher						
TS3	Recognizes academic freedom						
TS4	Encourages academic/pedagogical training of teachers						
TS5	Encourages the professional training of teachers						

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B2.- EXPLICIT KNOWLEDGE

Knowledge Adquisition
Your institution provides knowledge from…

		1	2	3	4	5	N/A
KA1	Obtained through scientific sources						
KA2	Obtained from teachers						
KA3	Obtained from students						
KA4	Obtained from administrative staff						
KA5	Obtained from managers						
KA6	Develops functional projects with social impact						
KA7	Is focused on entrepreneurship development						
KA8	Promotes and supports entrepreneurial skills						

Knowledge Transfer
In your university, knowledge is used to…

		1	2	3	4	5	N/A
KT1	Develop functional projects with social impact						
KT2	Develop functional projects with high profitability						
KT3	To develop entrepreneurship projects by students.						
KT4	Develop collaborative projects with private companies						
KT5	Develop collaborative projects with government						

Innovation
Innovation is working into

		1	2	3	4	5	N/A
IN1	Academic Management Systems (Lists, Grading, etc.)						
IN2	Administrative Management Systems (Procedures, Certificates, etc.)						
IN3	Academic platforms for teaching online classes.						
IN4	Use of information technologies in the classroom.						
IN5	Access to local databases						

Problem solution
When a problema is active your university search in…

		1	2	3	4	5	N/A
PS1	University regulations						
PS2	The academic secretariat						
PS3	The administrative secretariat						
PS4	The divisions						
PS5	The Heads of the departments (where it is attached)						
PS6	The academic delegation						
PS7	The Union of Academic						
PS8	Talks with other academics						

Trademark Influence and Brand Experience on Consumer's Loyalty to Fast Fashion Brands

Influencia del amor y la experiencia de marca en la lealtad a la moda rápida

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ABSTRACT

This work investigates the relationship between Brand love and Brand Experience with Brand Loyalty in fast fashion consumers in the ZMG. A quantitative instrument was built from whose answers it is intended to know if there is a positive relationship between the concepts of Love and Brand Experience and Brand Loyalty. From the results obtained, it sought to know the characteristics of the market, as well as the purchasing behavior and which of the brands studied is a favorite. The ANOVA was used to check whether the hypotheses were approved or rejected and to know the most critical consumer dimensions when developing loyalty to a fast fashion brand. The results reveal a positive relationship between the Brand Loyalty and Brand Experience and Brand Love scales. Therefore, the 2 Hypotheses presented for this study were accepted.

Keywords: Brand love; Brand experience; Brand loyalty

JEL code: M3

Trademark Influence and Brand Experience on Consumer's Loyalty to Fast Fashion Brands

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RESUMEN

El presente trabajo busca investigar la relación que existe entre: Amor de marca y Experiencia de Marca con la Lealtad a la Marca en consumidores de moda rápida en la ZMG. Se construyó un instrumento cuantitativo de cuyas respuestas se busca conocer si existe una relación positiva entre los conceptos de Amor y Experiencia de Marca con el concepto de Lealtad a la Marca. De los resultados obtenidos se busca conocer las características del mercado, además del comportamiento de compra y cuáles de las marcas estudiadas es su favorita, se usó el ANOVA para comprobar si las hipótesis se aprueban o rechazan, y saber cuáles son las dimensiones más importantes para los consumidores al momento de desarrollar lealtad hacia una marca de moda rápida. Los resultados conseguidos revelan que hay una relación positiva entre la escala Lealtad a la Marca y las escalas Experiencia de Marca y Amor de Marca, por lo que, las 2 Hipótesis presentadas para este estudio, fueron aceptadas.

Palabras clave: Amor de marca; Experiencia de marca; Lealtad de marca.

Código JEL: M3

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INTRODUCTION

This paper investigates the relationship between Brand Love and Brand Experience with Brand Loyalty (Robertson et al., 2022; Kim et al., 2023) in fast fashion consumers in the Guadalajara Metropolitan Area. The fashion industry is one of the largest in the world (Abdelmeguid et al., 2022).

Mexico is one of the leading markets for fast fashion since it is growing for the expansion of international brands that seek to cover the Latin American market. In addition, Mexican fast fashion brands increasingly must compete with more international companies expanding into the country, so they must be prepared to know what the local market is looking for and needs (Brooksworth et al., 2022).

For this reason, it is crucial to study the fast fashion market in the Guadalajara Metropolitan Area, and to carry out this study, three of the most essential fast fashion brands in the world were chosen: Zara, H&M, and Forever 21, and a Mexican brand, from the city of Guadalajara: LOB, with more than 30 years of history in the city.

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THEORETICAL FRAMEWORK

This section presents a review of the main theoretical aspects of the subject. First, the concepts of brand, brand love, and brand experience are described, and other constructs related to these concepts are considered relevant to this study.

Brand
Although the brand concept has yet to have a well-defined origin, there are counts of its existence since ancient times. Accounting records dating from 2250 B.C. in which pictorial symbols were used, even accompanied by text, to differentiate products and suppliers (Moore & Reid, 2008; Haigood 2001).

These pictorial symbols are named by the authors Moore and Reid (2008) as 'proto-brands.' Since then, they have fulfilled the aim of helping consumers to differentiate the recognized brands with which they could be negotiated more safely (Goulart et al., 2014) since its birth in the Indo Valle Market segmentation, Greece, 336 BC (Moore & Reid, 2008).

However, it was not until after the Industrial Revolution when the use of brands became widespread, leading companies to develop their brands to boost the growth of their business

(Goulart et al., 2014) since the products that they began to be commercialized on a large scale now they needed a much more precise identification to differentiate themselves from their competition (Goulart et al., 2014; Gobe, 2010).

In the mid-19th century, brands that are still successful today were born, such as Gillette and Quacker (Fullerton & Low, 1994). However, at the beginning of this stage, there was a period of resistance from consumers since they had more confidence in their local distributors than in a brand offered by a stranger (Goulart et al., 2014).

It was not until the beginning of the 20th century that the brands were incorporated into the daily life of American families, who now recognized an increase in their quality of life. It is how brand management was born as a new function in business organizations (Fullerton & Low, 1994).

The American Marketing Association (AMA) establishes that the brand definition is a "name, design, sign, symbol or combination of them whose intention is to identify goods or services of a seller or group of vendors to differentiate themselves from the competition" (AMA, 2023). Conversely, the discipline of Marketing evolved with the discipline of Administration (Nicolau et al., 2014).

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However, it was not until the 50s, after World War II, that a new paradigm in the industry emerged, mainly initiated by advances in the military area, mathematical influences, companies such as Ford Motor Company, and business schools that began to conduct research in the marketing area (Jones & Shaw, 2005; Hirschman & Holbrook, 1982; Iacobucci, 2002).

Then, the evolution of marketing thought had different currents: from functional, commodities, and product classification to institutional approaches, which discussed the role of intermediaries in the distribution channels (Goulart et al., 2014).

The same authors also establish that a well-designed brand must have tangible and intangible aspects developed by its marketing department, which transmit to its consumers a set of information that makes them experience it, generating a taste for it when consuming it so that they repeat the act of consumption.

When a brand is presented to the market, it needs to maximize its visibility and the added value it gives to its products and services, so it is essential that it has this set of qualities and intangible attributes that help to convince the consumer to choose at the time of purchase. (Spence et al., 2010; Aaker & Joachimsthaler, 2007; Aaker, 2004))

Marketing managers must understand what motivates their customers and needs and what specific brand characteristics satisfy them. It is the only way companies can motivate consumers to be loyal to their brand (Goulart et al., 2014).

It is vital to highlight the attributions of the brand that the American Marketing Association also makes, which establishes that "a brand is the consumer experience that is represented by a collection of images and ideas." This definition leads to the conclusion that the brand is not only a symbol; it is also an experience and therefore can create more vital impressions on consumers.

Kotler and Keller (2012) indicate that brand equity is how customers associate a brand according to what they perceive and based on their experiences with it. In conclusion, the brands acquire a more significant position in the market, which is bombarded by brands that compete, but in the end, the consumer has the last word on which brands he will offer his loyalty.

'Fast fashion concept'
The 'fast fashion' business model is based on offering customers, mainly young people, fashion trends in 'almost real' time (García, 2012). It means that the production and mass consumption of fashion products increases at the same rate as trends change (Acosta, 2014).

So instead of consumers having to wait four to six months to buy what they see on the catwalks - as is the case with 'high fashion' brands - stores that are part of the 'fast fashion' segment' offer their customers new models of clothing and accessories every two weeks, on average, and at a much more accessible price than their counterparts in the 'high fashion' sector, this being a process known as quick response, which was developed in the United States in the eighties, but it was not until the nineties when it began to gain popularity in the fashion industry (Esa, 2012).

This quick response represents a challenge for merchants. According to Bruce and Daly (2006), retailers must adapt their internal processes to manage the fast fashion cycle and inspect the supply base to meet fast fashion cost and time requirements.

In this way, the strategy used by fast fashion companies is redefined by Byun and Sternquist (2008) by summarizing what was stated by Guercini (2001), Moore and Fernie (2004), noting that it is a marketing approach that responds to the fashion trend of continually updating merchandise through a short renewal cycle and allowing for quick sales of inventories; so a short refresh cycle and low supply are the two main elements of a fast fashion strategy.

Trademark Influence and Brand Experience on Consumer's Loyalty to Fast Fashion Brands

This 'fast fashion' model has become a mass phenomenon, making the Spanish Amancio Ortega, owner of the Inditex Group and industry pioneer, the wealthiest man in the world in 2017 (Martin & Taylor, 2017) and in 2020 he was at number 6 on the Forbes billionaire list (2020) with 64.9 billion dollars.

The rage for Zara and other 'fast fashion' brands in the international market is easy to explain when one considers the low prices of the garments and the trends based on the latest catwalks by world-renowned designers, which allows the 'democratization' of fashion (García, 2012; Figueiredo et al., 2010).

Marketing plays a crucial role in 'fast fashion', since, in addition to the fact that stores must provide a pleasant and suitable shopping experience for the market they are targeting, one of the main characteristics of this sector is the promotion of a sense of urgency to purchase new products and the creation of a desire in consumers to wear the latest trends (Esa, 2012), even if this implies discarding these garments when they are no longer in use.

However, the market changes in a vertiginous way, and the case of the segment in which the fast fashion sector is focused is no exception. Many consumers have adopted an ideology based on "Buy less but better" (McSpirit, 1998; McKenzie et al., 2011). Additionally, young people were previously focused on "buying cheap fashion that only used one season." (Morgan & Birtwistle, 2009; Holmlund et al., 2011)

They have focused on buying garments designed by brands that offer "quality over amount" (Lang et al., 2013). However, this phenomenon of 'fast fashion' brands has not yet reached its limits, especially in the young segment of the middle class in developing countries and even in those countries whose economies are in crisis (García, 2012).

The main challenge for fast fashion brands is to adapt to changes in the youth market, improve the quality of product manufacturing, and seek sustainable solutions that counteract the rapid disposal of garments and the high levels of pollution that generate its process of production.

Brand love
One of the first authors to investigate the ability of consumers to develop an ability to 'love' certain products and the way they consume those products was Ahuvia in the early 1990s (Ahuvia & Carroll, 2006). Ahuvia's first findings, which he made through an interpretive paradigm, were the existence of "love products," defined as anything other than a person, and the emotional attachments that many consumers develop towards them.

In other studies, the author compared the model with which consumers identify interpersonal love with their descriptions of their love objects, and although he discovered some fundamental differences between the concepts of interpersonal Love and Love in consumption contexts, thanks to his investigations, a finding of a close relationship between both concepts was made (Ahuvia & Carroll, 2006).

Other authors, such as Fournier (1998), establish that a consumer's love for a brand is essential to a long-term relationship between a consumer and a brand. However, it must be remembered that just because there are specific essential differences between 'interpersonal love' and 'branded love' does not mean that 'branded love' is not a 'real' type of Love (Ahuvia et al., 2012).

Just as there are different characteristics between the different types of interpersonal love, and they are all "real loves," so 'branded love' is also genuine love and, therefore, must be studied with different metrics than those used for the construct of 'interpersonal love' (Ahuvia, Bagozzi & Batra, 2012).

Then, it was not until the research of Ahuvia and Carroll (2006) that the 'brand love' construct was established, which aimed to create a love construct specifically for brands so that it helps to increase awareness of them to achieve influence the consumer in the way they want.

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Therefore, we can use the investigation of the authors Ahuvia and Carroll (2006) to define the construct 'brand love' as "the grade of passionate, emotional attachment that a satisfied consumer has towards a commercial name." This construct includes passion for the brand, attachment to the brand, positive evaluation of the brand, positive emotions in response to the brand, and declarations of love for the brand (Ahuvia & Carroll, 2006). Therefore, the 'brand love' construct can serve as an instrument to know the level of relationship between a consumer and a particular brand, influencing both the purchase intentions and consumer attitudes (Bizarría, 2014).

It is important not to confuse the constructs of 'brand love' and 'satisfaction', since the love for a brand is a type of satisfaction not experienced by all satisfied consumers (Ahuvia & Carroll, 2006). The key differences between the satisfaction and brand love constructs are mainly based on the relationship between the consumer and the brand.

For example, satisfaction is recognized as a "cognitive judgment" (Ahuvia & Carroll, 2006), while brand love has a more practical approach. Likewise, we can consider satisfaction because of a specific transaction, while brand love implies that the consumer has a long-term relationship with the brand. Finally, the essential characteristic of brand love comes from the willingness to declare love for it, which implies that the consumer integrates the brand into

its own identity, which is not necessary in the case of the satisfaction construct (Ahuvia & Carroll, 2006).

Despite being a newly created construct, different investigations have been developed by other authors around the world. However, more studies must be developed to consolidate it critically (Bizarría, 2014). On the other hand, in Latin America and mainly in Mexico, the construct has not been explored in depth, so it is essential to carry out more research that includes this construct to find differences in its application in the Latin and Mexican markets.

On the other hand, it should also be taken into account that hedonic products, which do not meet a basic or utilitarian need but whose primary benefit is fun or pleasure, are the ones that tend to generate more robust emotional responses (Chandon et al., 2000), and this is why, when considering the fashion industry as a sector of hedonic products, it is essential to include the brand love construct in this research, using the study by the authors Ahuvia and Carroll (2006) as a basis.

Brand experience

The brand experience refers to all the stimuli related to the brand that the consumer is exposed to when searching for, buying, and consuming brands (Brakus et al., 2009), which generates subjective internal responses in the consumer, as well as behaviors caused by brand stimuli to which he was exposed. Among these stimuli, we can find different characteristics that identify brands and are part of their design and identity, such as logos, slogans, distinctive colors, and mascots.

These characteristics usually appear in packaging, communication and marketing actions, and other environments where the brand is promoted or sold (Brakus et al., 2009). Then, the consumer's internal and subjective responses and the behaviors resulting from brand stimuli are the basis for conceptualizing the 'brand experience' construct (Brakus et al., 2009). However, not all brand experiences are equal since certain brands evoke more intense experiences than others and can influence consumer loyalty (Shahid et al., 2022; Na et al., 2023; Tran & Chang, 2022).

It should be noted that current brand management models take, for the most part, a traditional vision focused on promoting the product's functional characteristics and basing competition on its price (Delgado & Fernández, 2011). However, according to the experiential perspective, the management of a brand must focus on being a "source of varied and diverse experiences" (Schmitt, 1999), which comes from the fact that the consumer goes through situations in which the brand has a significant presence.

Even though traditional management is the vision that most companies have, more and more of them seek to create experiences for their consumers that manage to add value to the functional characteristics of their products (Brakus et al., 2009) since more and more frequently, consumers assume that the functional characteristics and technical advantages of the products are relatively similar between them and for this reason, they seek a distinction through experiences (Delgado & Fernández, 2011).

Returning to the theoretical point of the construct, it is also necessary to differentiate the 'shopping experience' from other brand constructs (Brakus et al., 2009). For example, a brand-related stimulus generates evaluations or opinions about it. It triggers a brand experience for the consumer that can include sensations, feelings, thoughts, and behaviors triggered by a stimulus related to the brand. So, only a tiny part of a consumer's brand experience has to do with the general attitude of the customer towards the brand and with which the stimulus experienced is related (Brakus et al., 2009).

On the other hand, for a consumer to seek to approach a product or a brand, he must have a need, values, and interests that motivate him to make this approach. However, a consumer can have a 'brand experience' even though he feels disconnected or interested in getting closer to it.

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The fact that a consumer seeks to approach a brand implies that he or she has a need, values, and interests that motivate a consumer to approach an object such as a brand (Brakus et al., 2009). Which, as mentioned above, is optional to have an experience with a brand. The 'brand experience' builds an emotional bond between the consumer and the brand. However, this is only an internal result, and the 'brand experience' construct should be distinct from the concept of emotional relationships.

In addition, it is essential to highlight that experiences with the brand occur every time the consumer has a direct or indirect interaction with it or if they remember an essential episode for them in which the brand was linked (Delgado & Fernández, 2011), not only after buying or consuming it (Brakus et al., 2009). A consumer may make repeated purchases of the same brand with a very low experience intensity or may never purchase a brand with a very high experience intensity.

A model based on the sensory stimuli that are presented through the five senses was presented by Gobé (2010). The author establishes that "sound, visual, taste, tactile, olfactory stimuli. can build an effective relationship between the brand and the consumer" (Goulart et al., 2014). Other authors have proposed the dimensions that comprise the 'brand experience' construct, including Schmitt (1999), who proposes the following dimensions: senses, feelings, thoughts, actions, and relationships.

Considering these dimensions proposed by Schmitt (1999), the following research by the authors Brakus, Schmitt, and Zarantonello (2009) also recognizes five dimensions known as sensory, affective, intellectual, behavioral, and social, which will be used in the present investigation, based on the model presented by these three authors in 2009.

In summary, a brand is what the customer experiences since the brand is represented through a series of images and ideas. Therefore, a brand is not only a sign since it also encompasses the experiences that are had with it, making it possible to develop powerful emotions and feelings in customers. For its part, fast fashion offers customers fashion trends in almost real-time, which means that the production and mass consumption of fashion products increases as market trends change.

Regarding brand love, this is the level of enthusiastic sentimental attachment that a satisfied consumer has towards a commercial name that is the brand of the product. Likewise, brand experiences come to be the stimuli that have to do with the brand, which is what consumers are exposed to when searching for, buying, and consuming brands; but it should be noted that not all brand experiences are the same since some brands make more robust experiences than others; coming to influence customer loyalty in different ways.

METHODOLOGICAL DESIGN

A quantitative study (Ángeles & Münch, 2009). was carried out in which a questionnaire was sent electronically to 511 fast fashion consumers to obtain 370 answered surveys, of which 324 thoroughly answered surveys were obtained. This quantity was obtained by using the Statistics Calculator from the NetQuest website (https://www.netquest.com/panel/sample-calculator/statistical-calculators), which uses the following Gaussian distribution formula for large universes (Ochoa, 2015):

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{e^2}$$

Where n = sample size to be calculated.
Z = deviation of the average value we accept to obtain the desired level of trust (92.8%).
e = maximum error level to be tolerated (5%).
p = proportion to find (using 50% generally).

The questionnaire was applied in Plaza Galerías Guadalajara, located in Zapopan Jalisco, which is considered an ideal point to investigate since, in the same place, can find the four brands selected for the study; it was also sent by email and the social network Twitter.

The questionnaire has four sections: brand personality, brand experience, brand love, and loyalty, whose scales have been selected based on a literature review, specifically in Aaker and Joachimsthaler (1997), Ahuvia and Carroll (2006), Brakus, Schmitt and Zarantonelllo (2009) and Goulart, Oliveira Santino and Vinhal (2014).

Analysis unit
Within the present research project, fast fashion brands were analyzed:
Three of the world's most essential fast fashion brands are Zara, H&M, Forever 21, and a Mexican brand from Guadalajara: LOB.

Sample
For this research, a non-probabilistic sampling was used, for which the questionnaire was administered as a research tool to 324 fast fashion consumers who live in the Guadalajara Metropolitan Area.

Operationalization of variables

For this study project, the variables used were operationalized by using questions on the Likert scale, which uses statements that indicate the degree of agreement or disagreement concerning each statement to determine how favorable or unfavorable the point of view of the respondents regarding the questions that were the subject of this study.

Problem Statement
This research aims to determine the factors that influence consumer loyalty to fast fashion brands, so the problem can be defined with the following research question:
How do brand love and experience influence consumer loyalty and purchasing behavior of fast fashion brands Zara, H&M, Forever 21, and LOB in the Guadalajara Metropolitan Area?

Research objectives
This study aims to identify the influence of brand love and brand experience on consumer loyalty for fast fashion brands Zara, H&M, Forever 21, and LOB in the Guadalajara Metropolitan Area (ZMG).

The specific objectives arise from the general objective and seek to achieve the following:
-Analyze the 'brand experience' provided by selected fast fashion brands.
-Analyze the 'affective relationship' of consumers with selected fast fashion brands.
-Compare the factors determining a consumer's loyalty to a fast fashion brand.

Trademark Influence and Brand Experience on Consumer's Loyalty to Fast Fashion Brands

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Hypothesis

Goulart and others (2014) developed a conceptual model to study loyalty, considering brand experience and love. For this work, it was decided to add the brand personality construct as a contribution to the model and to corroborate if this construct influences loyalty to a fast fashion brand.

The hypotheses formulated for this study work are:
H1: Brand love positively influences loyalty to selected fashion brands.

H2: Brand experience positively influences loyalty to selected fashion brands.

Collection and processing of information

A questionnaire was prepared for this investigation according to the information obtained from the consulted bibliography. It was attempted to determine which factors influence consumer loyalty to fast fashion brands in the ZMG. Therefore, a questionnaire was made, making distinguishing these factors possible. Once the information was obtained, the results were examined and classified.

In this section, the results obtained in this investigation will be seen. Therefore, the analysis results with the SPSS program will be described to check the study's reliability. The analyses are the following: Cronbach's alpha and the KMO test. Finally, the results of the factorial analysis and the creation of ANOVAs are described to know the study's variables' interactions and the hypotheses' verification.

Field research results and conclusions

As part of this research project, a study was made on the factors influencing consumer loyalty to fast fashion brands. Within the research instrument used, specific questions that analyze consumer loyalty to fast fashion brands were considered in this questionnaire.

This study was conducted by surveying fast fashion consumers. They were given the questionnaire that was done for this work and that was used to verify the exposed hypotheses. Therefore, this study considered specific questions related to the factors influencing consumer loyalty to fast fashion brands. Additionally, Cronbach's Alpha was determined:

Reliability analysis (Cronbach's Alpha)

A Cronbach Alpha reliability analysis was made, in which the results of the complete instrument were obtained, as well as the results of each dimension that make up the scales that make up the questionnaire.

The value of Cronbach's Alpha, considering all the items that make up the instrument, obtained a reliability level > .9, so the instrument can be considered 'excellent' reliable according to Frías (2014).

Table 1
Cronbach's Alpha

Reliability statistics	
Cronbach´s Alpha	N. of elements
.906	34

Source: Own elaboration based on SPSS results

The value of Cronbach's Alpha considering the items of the Brand Loyalty Scale by Ahuvia & Carroll (2006) obtained a reliability level >.8, which is why it is considered 'good' according to Frías (2014).

Table 2
Cronbach's Alpha Loyalty scale to the brand (Ahuvia & Carroll, 2006).

Cronbach´s Alpha	N of elements
.824	4

Source: Own elaboration based on SPSS results

As can be seen in the tables with the statistical reliability results, Cronbach's Alpha is highly consistent since it is close to number 1.

Hypothesis verification through variance analysis (ANOVAs)
Variance analyses were performed relating each scale studied with the Brand Loyalty scale to establish whether there is a positive relationship between them according to the data obtained in the study.

With Tables 3 and 4, hypotheses H1 and H2 can be verified since brand love and brand experience have a positive relationship with brand loyalty, with significance levels of .000 and .001, respectively.

Table 3
ANOVAs Brand Love

		Sum of squares	gl	Root mean square	F	Sig.
Brand love	Between groups	19.339	16	1.209	3.085	.000
	Within groups	120.296	307	.392		
	Total	139.634	323			

Source: Own elaboration (SPSS)

Trademark Influence and Brand Experience on Consumer's Loyalty to Fast Fashion Brands

As already indicated, the study by Ahuvia and Carroll (2006) indicates that 'brand love' is determined by the emotional attachment of a satisfied customer to a particular brand. This construct includes passion for the brand, attachment to the brand, positive evaluation of the brand, positive emotions in response to the brand, and declarations of love for the brand (Ahuvia & Carroll, 2006).

That is why the construct of 'brand love,' as indicated by Bizarría (2014), helps to understand the relationship between a customer and a particular brand, which in turn influences their purchase intentions and attitudes toward brands on the part of buyers.

Thus, the specific construct "brand love" suggests that products with a hedonic sense and/or brands of self-expression, such as fast fashion brands, tend to be more loved and encourage favorable post-consumer behavior towards their consumers (Ahuvia & Carroll, 2006). In this regard, Ahuvia (2005) indicates that there are some fundamental similarities between interpersonal Love and Love in consumer contexts, which coincides with the work of other researchers such as Allen and others (2004) and MacInnis, Park and Thomson (2005).

For their part, Kohli, Khandai, Yadav, and Kataria (2021) point out that brand love is an aspect of the brand that currently attracts much attention. However, there needs to be more in measuring the effect of brand love and brand hate on the relationship between brand experience and brand loyalty in research conducted in the fashion apparel sector in India. That study collected data from 250 participants using online and offline channels. The results indicate that brand experience is direct.

The results indicate that brand experience is directly related to brand loyalty. In addition, brand love intervenes in the relationship between brand experience and attitudinal loyalty. In contrast, brand hate, ideological incompatibility, and symbolic incongruity influence the relationship between brand experience and attitudinal and behavioral loyalty.

In an investigation they conducted, Bae and Kim (2023) found that brand experience affects brand love, and brand love, in turn, affects brand loyalty. They also found that brand experience affects brand loyalty, and brand love influences the relationship between brand experience and brand loyalty, which coincides with what has already been mentioned by Kohli, Khandai, Yadav, and Kataria (2021).

Likewise, Bae and Kim (2023) point out that brand trust had a moderating effect between brand experiences and brand love but did not have a moderating effect between brand experiences and brand loyalty. Finally, Bae and Kim found that brand trust has a moderating role in mediating between brand experience, brand love, and brand loyalty.

Tabla 4
ANOVAs Brand Experience

		Sum of squares	gl	Root mean square	F	Sig.
Brand experience	Between groups	8.021	16	.501	2.586	.001
	Within groups	59.521	307	.194		
	Total	67.542	323			

Source: Own elaboration (SPSS)

As Brakus, Schmitt, and Zarantonello (2009) indicated, the brand experience covers all the stimuli to which the customer is exposed and refers to the brand itself, including the search, purchase, and consumption of said brand. In contrast, the experiential perspective, with more business practice than academic practice, argues that brands should focus on customer experiences when encountering or experiencing certain situations in which it is present (Delgado & Fernández, 2011).

However, Villarejo (2002) mentions that quality serves to evaluate and determine the importance that the client gives to the experience they have with the brand, so the perception of good quality will mean that the experiences they have with the brand will help to differentiate the brand from the others.

Conversely, González, Orozco, and Barrios (2011) carried out an investigation where they examined, among other things, the role of brand equity, as well as the experience one has with the brand itself. Discovering that the preference and the experience with the brand help to achieve a good brand positioning in the client's mind, contributing to buying the brand.

In addition, other studies referring to the brand experience indicate that customers do not only buy a product or service since they also seek an experience with said product (Morrison & Crane, 2007). It means that buyers are not satisfied only with the benefits of a product, since they also want intangible benefits such as the experience with that brand that they acquire from a product or service, which in turn influences more and more the buyers' decision-making (Ong et al., 2018; Prentice et al., 2019; Schmitt, 1999; Walls et al., 2011; Zarantonello & Schmitt, 2010).

For Gentile and others (2007), positive experiences with a brand contribute to developing the relationship between its consumers and the brand itself. Gunduzyeli (2022), in his investigation, that he carried out, whose objective was to determine the effects of different dimensions of the brand experience on brand resonance, found that the dimensions of the affective, behavioral, and intellectual experience of the brand had a significant and positive effect on brand resonance. Therefore, the experiential interactions companies design for their brands will help achieve a loyal consumer base.

So, both hypotheses are approved:

H1: Brand love positively influences loyalty to selected fashion brands.

H2: Brand experience positively influences loyalty to selected fashion brands.

The results obtained after analyzing the surveys carried out for this study show that there is indeed a positive relationship between the Brand Loyalty scale and the Brand Experience and Brand Love scales.

Therefore, the 2 Hypotheses presented at the beginning of the study are accepted. The Brand Love scale has a slightly more significant relationship since it has a significance of .000, while with the Brand Experience scale, a significance of .001 was obtained. However, due to the few differences between the results, the two are essential for developing loyalty toward fast fashion brands in the Guadalajara Metropolitan Area consumers.

CONCLUSIONS

The present study was conducted to answer the research problem: How do brand love and brand experience influence loyalty in fast fashion consumers? From these 2, hypotheses were derived that seek to identify if there is a positive relationship between the Brand Loyalty Scale of Ahuvia and Carroll (2006) and the Brand Experience Scale of the authors Brakus, Schmitt and Zarantonello (2009) and the Brand Love Scale from Ahuvia and Carroll (2006). Being a study focused on the fast fashion industry in the Guadalajara Metropolitan Area, four brands with a strong presence in the area were selected: Zara, H&M, Forever 21, and the Mexican brand LOB.

As already indicated, the results show a positive relationship between the Brand Loyalty and Brand Experience and Brand Love scales. Therefore, the 2 Hypotheses presented at the beginning of this study were accepted:

H1: Brand love positively influences loyalty to selected fashion brands.

H2: Brand experience positively influences loyalty to selected fashion brands.

Regarding the Brand Love scale, it was found that there is a slightly more significant relationship than with the Brand Experience scale, since in the case of the Brand Love scale, a significance of .000 was obtained, while the Brand Experience scale had a significance of .001. Therefore, given the little difference in the results, both are very important for developing loyalty towards fast fashion brands among customers in the Guadalajara Metropolitan Area.

Having focused this study on 3 of the most critical fast fashion brands in the world, Zara, H&M, and Forever 21, and one Mexican brand from Guadalajara, LOB, it is essential to delve into the results obtained from them in order to understand better how is that the consumers who selected them as favorites consider their positioning according to the scales studied in this research.

In the case of the Brand Experience scale of the authors Brakus, Schmitt, and Zarantonello (2009), according to the results obtained, it can be concluded that consumers who prefer Forever 21 have a lower brand experience than those who prefer Zara, but more robust than those who prefer H&M, as they are also excited about and impressed by the brand. At the same time, the Mexican brand LOB is the one that offers a weaker brand experience to its consumers compared to the other brands studied in this research, which can affect the development of brand loyalty in its consumers. Therefore, the Zara brand is the one that offers the best experience with the brand for its consumers.

In the case of Ahuvia and Carroll's (2006) Brand Love scale, all brands had a single dimension in which respondents who prefer them as their favorite responded positively with more than half of the answers, except for H&M.

The three remaining brands, Zara, Forever 21 and LOB, gave feedback from their customers that the brand they chose makes them feel happy, so it can be concluded that even though consumers who consider them as their fast fashion favorites do not have such a strong emotional relationship with them if they get a feeling of happiness when having contact with the brand, which can be considered very important when it comes to developing a feeling of loyalty in their buyers, and in this case it is the Swedish brand H&M that is at a disadvantage compared to the three remaining brands: Zara, Forever 21 and LOB, which are its main competitors in the Guadalajara Metropolitan Area.

It would be interesting in future research to delve into the issue of Brand Positioning and its relationship with Brand Loyalty to find out if there is also a positive relationship between the two, as was concluded with the Brand Experience and Brand Love scales in which the present investigation was focused. In the same way, a broader analysis of the fast fashion brands to be studied could be carried out, adding some of those mentioned by the respondents as their favorites that were not part of the four initially selected for this study, and thus see how they compare with the competition in the Guadalajara Metropolitan Area, or further expand the study to other areas of the country, since both Zara, H&M, Forever 21 and LOB as well as other brands mentioned as favorites by those surveyed have a presence in different Mexican cities. Therefore, it would be interesting to investigate whether there is a difference between the consumers of these brands in different areas of Mexico.

Finally, as a recommendation to the Mexican fashion industry in general, a company needs to be successful in such a competitive environment to focus on the consumer, to know what they are looking for, to leave the maquila aside, and choose to innovate in original creations and own designs so that they can compete not only in the national territory but also in the sphere of the international industry.

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FINANCIAL AND ECONOMIC INDICATORS
The Monte Carlo method of random simulation samples

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The Monte Carlo method is one of the most powerful mathematical techniques that, through calculation, analyzes risk and allows solving physical and mathematical problems through computer programs, Using historical data, creates and predicts models of possible future results by substituting a range of values, calculating results over and over again, using a different group of random values of the probability functions to predict the possible results of some uncertain event related to problems of all kinds.

Monte Carlo simulations offer a clearer picture than a deterministic forecast. The model has a wide range of applications that offer the probability of possible outcomes in various sectors that handle multiple random variables such as business, investment, engineering, biology, meteorology, astronomy, particle physics, etc. Among the practical applications in business, finance, and economics, we can mention the following problems:

a) Stocks: The Monte Carlo model estimates the possible behavior of the future value and profitability of an individual stock or a group of stocks. The prediction of the probability of the movement and future value of the shares is carried out taking into consideration that in reality, it is not possible to predict it accurately.

b) Investment projects: They are used to estimate the probability of implementing large projects based on their profitability, avoiding cost overruns and time overruns in schedules.

c) Investment Portfolios: Create, value, and analyze the financial products that comprise it to generate a positive return.

d) Evaluate complex financial products such as those derived from financial options.

e) Risk management: identifies, analyzes, and evaluates risks, as well as their mitigation and supervision. Risk identification is the process of identifying and evaluating threats to an organization, its operations, and its administrative processes.

f) Creation of risk management models: Processes for measuring and quantifying the probabilities of adverse effects on the markets in financial investments or new projects.

The development of the Monte Carlo method began in 1946 by the mathematician and physicist Stanislaw Ulam (1909–1984), who was involved in the Manhattan Project whose objective was to develop the first atomic bomb. The idea of statistical simulation arose after asking the following question: What is the possibility of successfully solving a Canfield solitaire with 52 cards? The method was built thinking about problems such as neutron diffusion in mathematical physics. and in how to change the processes by differential equations as a succession of random operations. This idea was shared with John Von Neumann, and together they began to plan the actual calculations. (Ulam, 1983).

In the Journal of the American Statistical Association, in 1949 a seminal article was published where Nicholas Metropolis and Stanislaw Ulam presented the technique: The Monte Carlo method. The name Monte Carlo to designate the statistical simulation technique was proposed by Metropolis, inspired by the interest that Stanislaw Ulam had in the game of poker, (Metropolis and Stanislaw, 1949).

The Monte Carlo method is a numerical resolution method where the relationships and interactions of different objects and their environment are modeled, through the random generation of these interactions. The greater the repetition of tests, the result that converges to a value with greater precision. (Vargas & Cruz-Carpio, 2020)

In Monte Carlo methods the properties of the distributions of random variables are investigated by simulating random numbers. These methods are like the usual statistical methods in which random samples are used to make inferences about source populations. In its statistical application, a model is used to simulate a phenomenon that contains some random component. In Monte Carlo methods, the object of investigation is a model itself, and random or pseudo-random events are used to study it (Gentle, 2006).

In all types of research where an observation or measurement experiment is carried out, and data from different variables are obtained; It is essential to make a dependency relationship between the variables to make predictions or forecasts of future events.

The difference between a simulation and a statistical analysis is that in the Monte Carlo simulation, the results or output variables previously obtained in the statistical analysis are used as input variables (Eppen, 2000).

At present, the Monte Carlo model methodology has not been applied in armed conflicts, its use has been oriented towards solving problems to obtain a social benefit. The great

importance of the Monte Carlo method is based on the attention to problems that are difficult to solve by analytical or numerical methods, which depend on random factors or are associated with a deterministic model, identifying, and offering optimal solutions.

Economic and financial indicators are useful tools that benefit organizations by facilitating timely and appropriate decision-making about their corporate and financial strategies.

Next, the evolution of some economic and financial indicators of the Mexican environment is described and shown to facilitate decision-making related to personal and business strategies in an integral manner.

1. National Consumer Price Index (INPC, Spanish)
2. The Price and Quotation Index of the Mexican Stock Exchange (IPC, Spanish)
3. Exchange rate
4. Equilibrium interbank interest rate (TIIE, Spanish)
5. CETES rate of return
6. Investment units (UDIS, Spanish)

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1. NATIONAL CONSUMER PRICE INDEX (INPC)

Born in 1995 and reflecting changes in consumer prices, measures the general increase in prices in the country. It is calculated fortnightly by the Bank of Mexico and INEGI (2021). INPC is published in the Official Gazette of the Federation on the 10th and 25th of each month. The reference period is the second half of December 2010.

Table 1

Accumulated inflation in the year (Base: 2nd. Fortnight of December 2010 = 100 with data provided by *Banco de México*)

Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	1.48	0.77	0.98	0.79	0.90	-0.09	0.38	1.70	0.53	0.09	0.48	0.86	0.59	0.76
Febrero	2.15	1.42	1.47	1.46	1.15	0.09	0.82	2.29	0.91	0.06	0.90	1.50	1.43	1.24
Marzo	2.52	1.84	1.55	1.99	1.43	0.51	0.97	2.92	1.24	0.44	0.85	2.34	2.43	1.51
Abril	1.98	0.72	0.69	1.81	1.24	0.25	0.65	3.04	0.90	0.50	-0.17	2.67	2.98	1.47
Mayo	0.60	-0.70	-0.65	0.95	0.91	-0.26	0.20	2.92	0.73	0.21	0.22	2.88	3.17	1.27
Junio	0.49	-0.41	-0.41	1.12	1.09	-0.09	0.31	3.18	1.12	0.27	0.76	3.43	4.04	1.37
Julio	0.56	-0.04	0.32	1.14	1.42	0.06	0.57	3.57	1.66	0.65	1.43	4.04	4.81	1.86
Agosto	0.91	0.30	0.92	1.31	1.73	0.27	0.86	4.08	2.26	0.63	1.82	4.24	5.54	2.42
Septiembre	1.27	0.73	1.12	1.61	2.18	0.27	1.47	4.41	2.69	0.89	2.06	4.88	6.19	
Octubre	2.35	2.33	2.12	2.77	2.74	1.16	2.09	5.06	3.22	1.44	2.68	5.76	6.79	
Noviembre	3.89	4.87	3.86	4.57	3.57	1.71	2.89	6.15	4.10	2.26	2.76	6.97	7.41	
Diciembre	4.19	5.81	3.97	5.21	4.08	2.13	3.36	6.77	4.83	2.83	3.15	7.35	7.82	

Source: Own elaboration (INEGI, 2023). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

Graph 1

Inflation in Mexico (2010-2022 accumulated at the end of the year)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Series1	4,19	5,81	3,97	5,21	4,08	2,13	3,36	6,77	4,83	2,83	3,15	7,35	7,82	

YEAR

Source: Own elaboration (INEGI, 2023). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

Graph 2

Inflation in Mexico (accumulated January-August 2023)
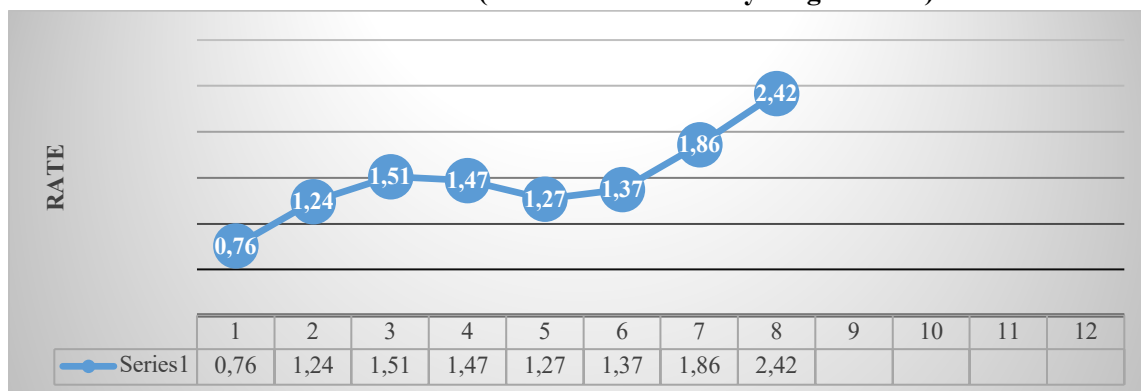
	1	2	3	4	5	6	7	8	9	10	11	12
Series1	0,76	1,24	1,51	1,47	1,27	1,37	1,86	2,42				

Source: Own elaboration (INEGI, 2023). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

2. THE PRICE AND QUOTATION INDEX OF THE MEXICAN STOCK EXCHANGE (IPC)

Represents the change in the values traded on the Mexican Stock Exchange concerning the previous day to determine the percentage of rising or falling of the most representative shares of the companies listed therein.

Table 2

The Price and Quotation Index of the Mexican Stock Exchange (Base: October 1978, 0.78=100)

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
36,982	37,422	45,278	40,879	40,951	43,631	47,001	50,456	43,988	44,862	42,986	51,331	54,564
37,020	37,816	44,121	38,783	44,190	43,715	46,857	47,438	42,824	41,324	44,593	53,401	52,758
37,441	39,521	44,077	40,462	43,725	45,881	48,542	46,125	43,281	34,554	47,246	56,537	53,904
36,963	39,461	42,263	40,712	44,582	45,785	49,261	48,354	44,597	36,470	48,010	51,418	55,121
35,833	37,872	41,588	41,363	44,704	45,459	48,788	44,663	42,749	36,122	50,886	51,753	52.736
36,558	40,199	40,623	42,737	45,054	45,966	49,857	47,663	43,161	37,716	50,290	47,524	53.526
35,999	40,704	40,838	43,818	44,753	46,661	51,012	49,698	40,863	37,020	50,868	48,144	54.819
35,721	39,422	39,492	45,628	43,722	47,541	51,210	49,548	42,623	36,841	53,305	44,919	53.021
33,503	40,867	40,185	44,986	42,633	47,246	50,346	49,504	43,011	37,459	51,386	44,627	
36,160	41,620	41,039	45,028	44,543	48,009	48,626	43,943	43,337	36,988	51,310	49,922	
36,829	41,834	42,499	44,190	43,419	45,286	47,092	41,733	42,820	41,779	49,699	51,685	
37,077	43,706	42,727	43,146	42,998	45,643	49,354	41,640	43,541	44,067	53,272	48,464	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es

Graph 3

The Monte Carlo method of random simulation samples

The Price and Quotation Index of the Mexican Stock Exchange, 2011 - 2022 (Score at the end of each year)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Series1	37.077	43.706	42.727	43.146	42.998	45.643	49.354	41.640	43.541	44.067	53.272	48.464	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es

Graph 4
The Price and Quotation Index of the Mexican Stock Exchange, January-August 2023 (Score at the end of each month

	1	2	3	4	5	6	7	8	9	10	11	12
Series1	54.564	52.758	53.904	55.121	52.736	53.526	54.819	53.021				

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es

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MERCADOS *y Negocios*

3. EXCHANGE RATE

It is the value of the Mexican peso concerning the dollar calculated with the daily average of the five most important banks in the country, which reflects the spot price (cash), negotiated between banks. It is highly related to Inflation, the interest rate, and the Mexican Stock Exchange.

Table 3

Exchange rate (National currency per US dollar, parity at the end of each period)

Periodo	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	12.02	12.95	12.71	13.37	14.69	18.45	21.02	18.62	19.04	18.91	20.22	20.74	18.79
Febrero	12.17	12.87	12.87	13.30	14.92	18.17	19.83	18.65	19.26	19.78	20.94	20.65	18.34
Marzo	11.97	12.80	12.36	13.08	15.15	17.40	18.81	18.33	19.38	23.48	20.44	19.99	18.04
Abril	11.59	13.20	12.16	13.14	15.22	19.40	19.11	18.86	19.01	23.93	20.18	20.57	18.00
Mayo	11.63	13.91	12.63	12.87	15.36	18.45	18.51	19.75	19.64	22.18	19.92	19.69	17.74
Junio	11.84	13.66	13.19	13.03	15.57	18.91	17.90	20.06	19.21	23.09	19.91	20.13	17.07
Julio	11.65	13.28	12.73	13.06	16.21	18.86	17.69	18.55	19.99	22.20	19.85	20.34	16.73
Agosto	12.41	13.27	13.25	13.08	16.89	18.58	17.88	19.07	20.07	21.89	20.06	20.09	16.92
Septiembre	13.42	12.92	13.01	13.45	17.01	19.50	18.13	18.90	19.68	22.14	20.56	20.09	
Octubre	13.20	13.09	12.89	13.42	16.45	18.84	19.15	19.80	19.16	21.25	20.53	19.82	
Noviembre	14.03	13.04	13.09	13.72	16.55	20.55	18.58	20.41	19.61	20.14	21.45	19.40	
Diciembre	13.99	13.01	13.08	14.72	17.21	20.73	19.79	19.68	18.87	19.91	20.47	19.47	

NOTE: Exchange rate FIX by The Banco de México, used for settle obligations denominated in foreign currency. Quote at the end
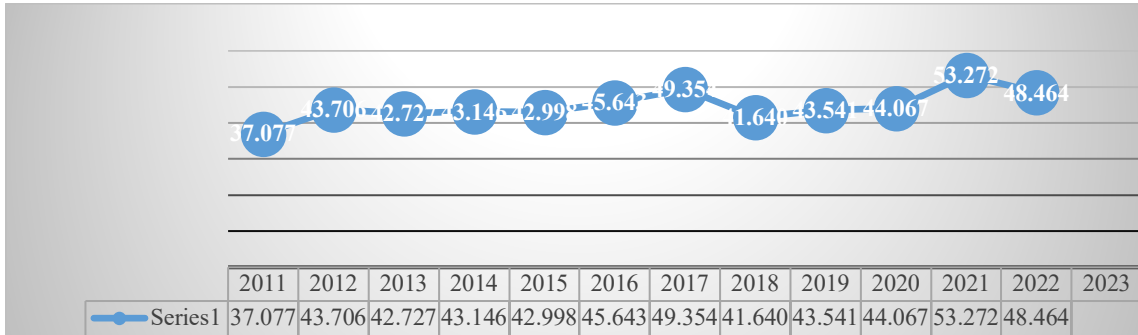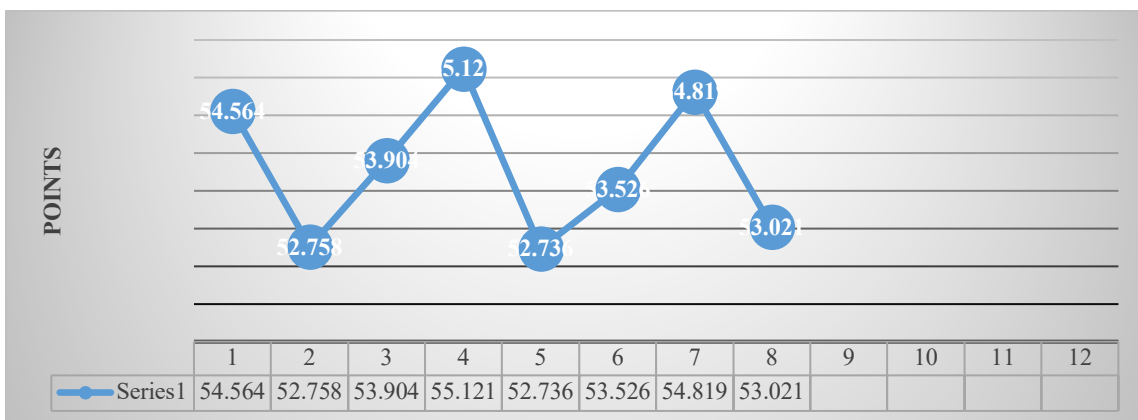
Source: Own elaboration (BANXICO, 2023).

https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es

Graph 5

Exchange rate (National currency per US dollar, 2011-2022, FIX parity at the end of each year)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Series1	13,99	13,01	13,08	14,72	17,21	20,73	19,79	19,68	18,87	19,91	20,47	19,47	

Source: Own elaboration (BANXICO, 2023).

https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es
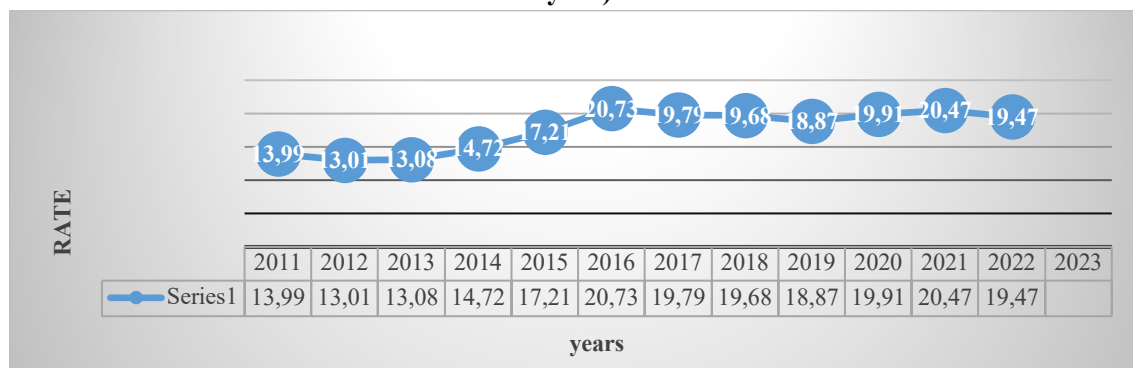
Graph 6
Exchange rate (National currency per US dollar, January-August 2023, FIX parity at the end of each month)

	1	2	3	4	5	6	7	8	9	10	11	12
Series1	18,79	18,34	18,04	18,00	17,74	17,07	16,73	16,92				

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es

4. EQUILIBRIUM INTERBANK INTEREST RATE (TIIE)

On March 23, 1995, the Bank of Mexico, to establish an interbank interest rate that better reflects market conditions, released the Interbank Equilibrium Interest Rate through the Official Gazette of the Federation.

Table 4
Equilibrium interbank interest rate (28-day quote)

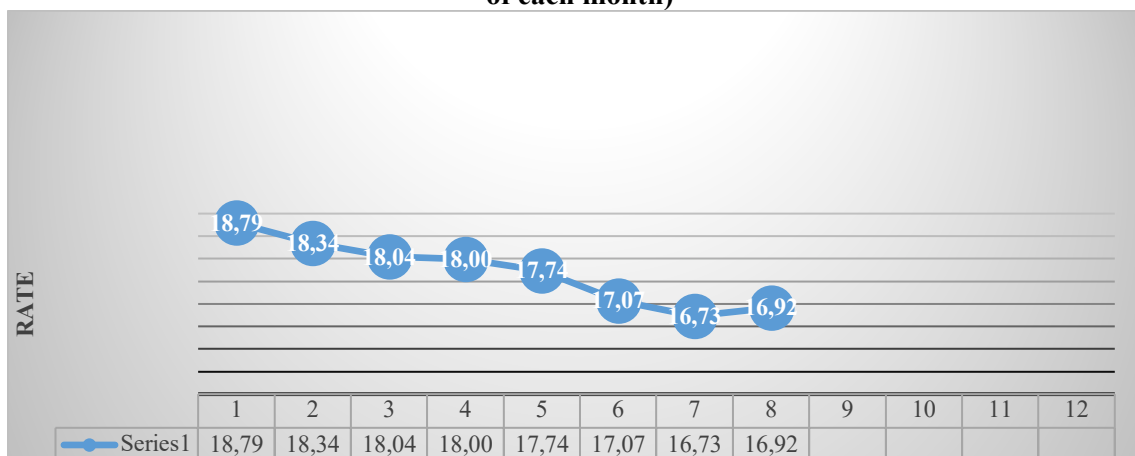| Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	4.91	4.86	4.79	4.84	3.78	3.29	3.56	6.15	7.66	8.59	7.50	4.47	5.72	10.78
Febrero	4.92	4.84	4.78	4.80	3.79	3.29	4.05	6.61	7.83	8.54	7.29	4.36	6.02	11.10
Marzo	4.92	4.84	4.77	4.35	3.81	3.30	4.07	6.68	7.85	8.51	6.74	4.28	6.33	11.34
Abril	4.94	4.85	4.75	4.33	3.80	3.30	4.07	6.89	7.85	8.50	6.25	4.28	6.73	11.53
Mayo	4.94	4.85	4.76	4.30	3.79	3.30	4.10	7.15	7.86	8.51	5.74	4.29	7.01	11.54
Junio	4.94	4.85	4.77	4.31	3.31	3.30	4.11	7.36	8.10	8.49	5.28	4.32	7.42	11.50
Julio	4.92	4.82	4.78	4.32	3.31	3.31	4.59	7.38	8.11	8.47	5.19	4.52	8.04	11.50
Agosto	4.90	4.81	4.79	4.30	3.30	3.33	4.60	7.38	8.10	8.26	4.76	4.65	8.50	11.50
Septiembre	4.90	4.78	4.81	4.03	3.29	3.33	4.67	7.38	8.12	8.04	4.55	4.75	8.89	
Octubre	4.87	4.79	4.83	3.78	3.28	3.30	5.11	7.38	8.15	7.97	4.51	4.98	9.56	
Noviembre	4.87	4.80	4.85	3.80	3.31	3.32	5.57	7.39	8.34	7.78	4.48	5.13	10.00	
Diciembre	4.89	4.79	4.85	3.79	3.31	3.55	6.11	7.62	8.60	7.55	4.49	5.72	10.53	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es

Graph 7
Equilibrium interbank interest rate, 2010- 2022 (at the end of each year)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Series1	4,89	4,79	4,85	3,79	3,31	3,55	6,11	7,62	8,60	7,55	4,49	5,72	10,53	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es
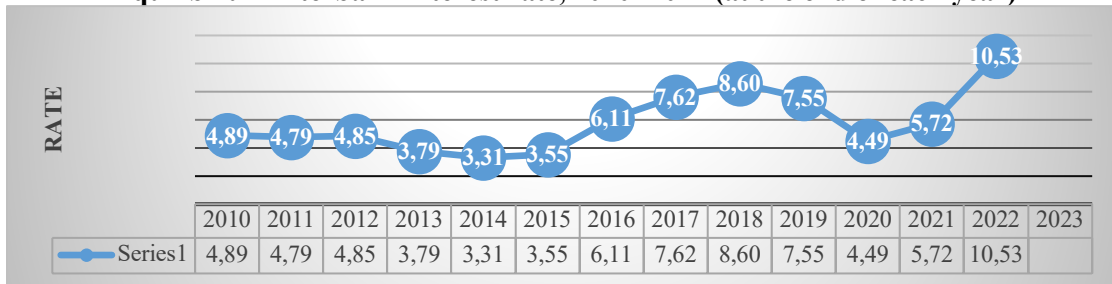
Graph 8
Equilibrium interbank interest rate, January-August 2023 (28-day quote)

	1	2	3	4	5	6	7	8	9	10	11	12
Series1	10,78	11,10	11,34	11,53	11,54	11,50	11,50	11,50				

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es
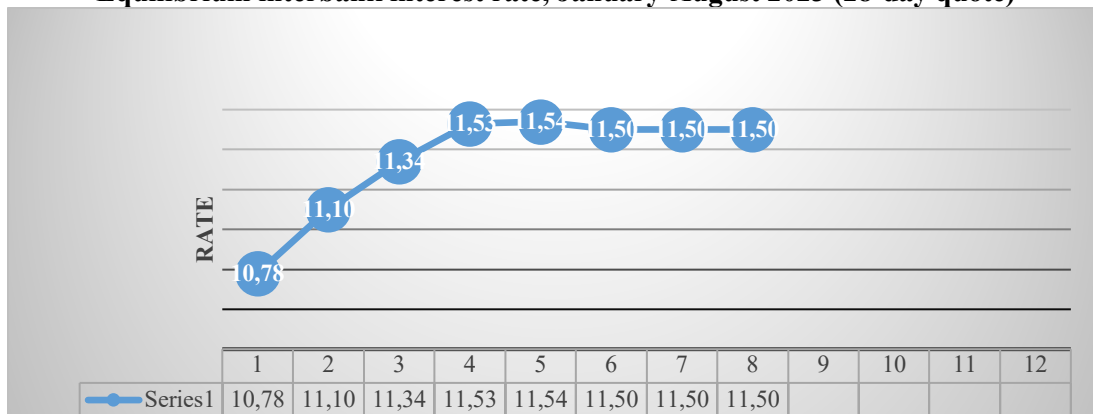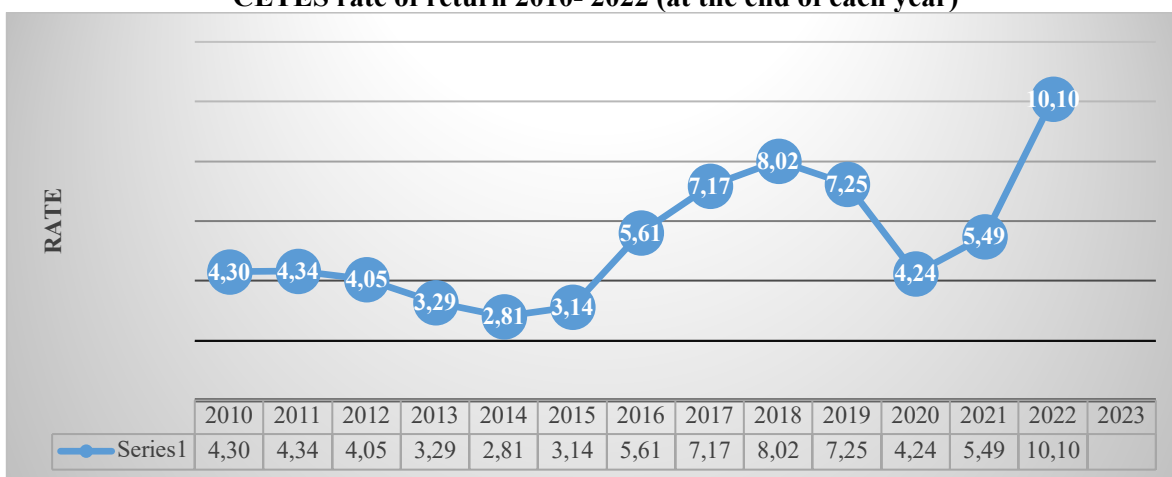
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5. CETES RATE OF RETURN

Table 5.
CETES rate of return (28-day)

Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	4.49	4.14	4.27	4.15	3.14	2.67	3.08	5.83	7.25	7.95	7.04	4.22	5.50	10.80
Febrero	4.49	4.04	4.32	4.19	3.16	2.81	3.36	6.06	7.40	7.93	6.91	4.02	5.94	11.04
Marzo	4.45	4.27	4.24	3.98	3.17	3.04	3.80	6.32	7.47	8.02	6.59	4.08	6.52	11.34
Abril	4.44	4.28	4.29	3.82	3.23	2.97	3.74	6.50	7.46	7.78	5.84	4.06	6.68	11.27
Mayo	4.52	4.31	4.39	3.72	3.28	2.98	3.81	6.56	7.51	8.07	5.38	4.07	6.90	11.25
Junio	4.59	4.37	4.34	3.78	3.02	2.96	3.81	6.82	7.64	8.18	4.85	4.03	7.56	11.02
Julio	4.60	4.14	4.15	3.85	2.83	2.99	4.21	6.99	7.73	8.15	4.63	4.35	8.05	11.09
Agosto	4.52	4.05	4.13	3.84	2.77	3.04	4.24	6.94	7.73	7.87	4.50	4.49	8.35	11.07
Sep.	4.43	4.23	4.17	3.64	2.83	3.10	4.28	6.99	7.69	7.61	4.25	4.69	9.25	
Oct.	4.03	4.36	4.21	3.39	2.90	3.02	4.69	7.03	7.69	7.62	4.22	4.93	9.00	
Nov.	3.97	4.35	4.23	3.39	2.85	3.02	5.15	7.02	7.83	7.46	4.28	5.05	9.70	
Dic.	4.30	4.34	4.05	3.29	2.81	3.14	5.61	7.17	8.02	7.25	4.24	5.49	10.10	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es

Graph 9
CETES rate of return 2010- 2022 (at the end of each year)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Series1	4,30	4,34	4,05	3,29	2,81	3,14	5,61	7,17	8,02	7,25	4,24	5,49	10,10	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es

Graph 10
CETES rate of return, January-August 2023 (at the end of each month)

	1	2	3	4	5	6	7	8	9	10	11	12
Series1	10,80	11,04	11,34	11,27	11,25	11,02	11,09	11,07				

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es
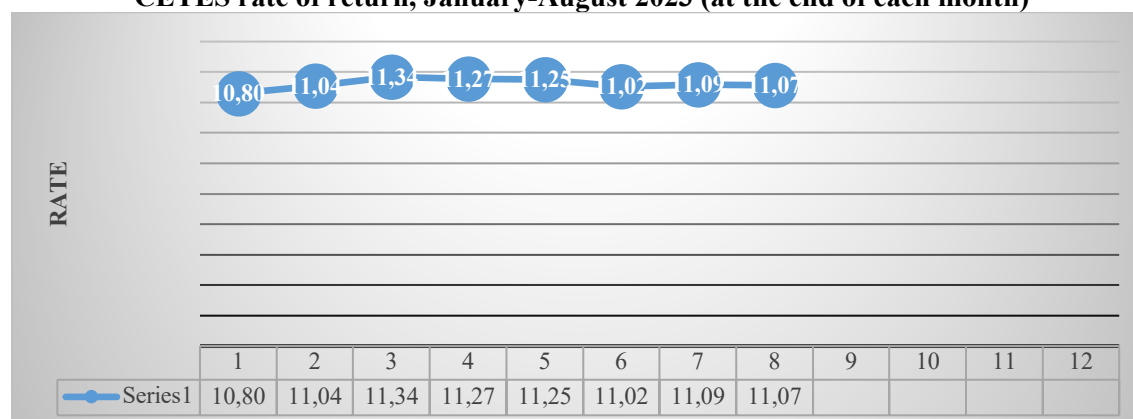
6. INVESTMENT UNITS (UDIS)

The UDI is a unit of account of constant real value to denominate credit titles. It does not apply to checks, commercial contracts, or other acts of commerce.
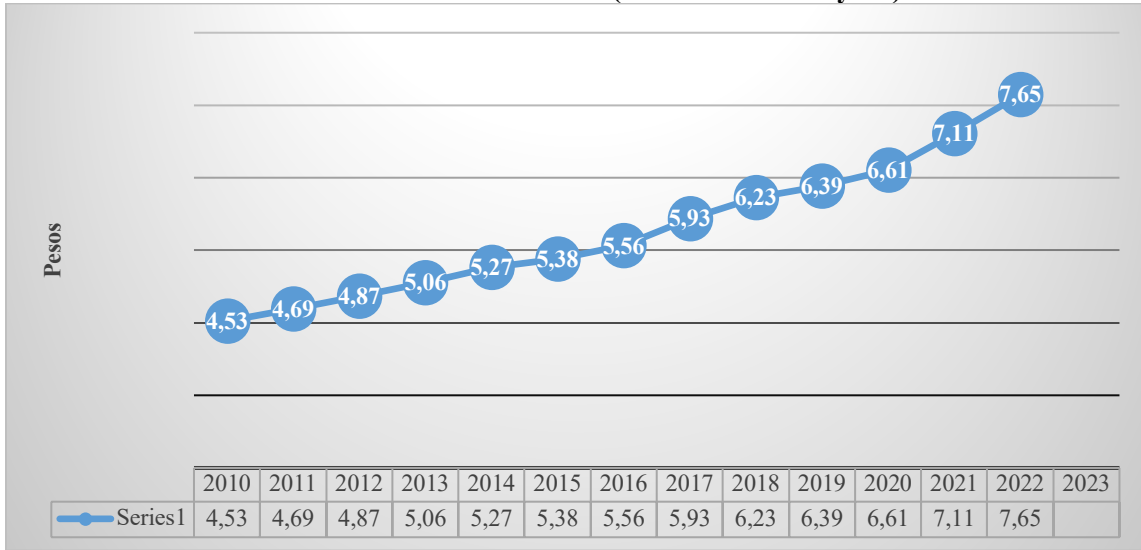
Table 6
Investment units (value concerning pesos)

Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	4.37	4.56	4.73	4.89	5.10	5.29	5.41	5.62	5.97	6.25	6.44	6.64	7.12	7.69
Febrero	4.41	4.57	4.75	4.92	5.13	5.29	5.43	5.69	6.00	6.25	6.46	6.70	7.18	7.74
Marzo	4.44	4.59	4.75	4.94	5.15	5.30	5.44	5.71	6.02	6.26	6.49	6.75	7.24	7.77
Abril	4.46	4.59	4.75	4.97	5.15	5.32	5.45	5.75	6.03	6.28	6.43	6.79	7.31	7.78
Mayo	4.43	4.58	4.71	4.96	5.13	5.29	5.42	5.75	6.01	6.27	6.42	6.81	7.33	7,78
Junio	4.41	4.55	4.74	4.95	5.13	5.28	5.42	5.75	6.01	6.26	6.44	6.83	7.36	7.77
Julio	4.42	4.57	4.77	4.95	5.14	5.28	5.42	5.76	6.04	6.27	6.49	6.87	7.43	7.79
Agosto	4.43	4.58	4.78	4.95	5.16	5.29	5.44	5.79	6.07	6.29	6.52	6.90	7.47	7.83
Septiembre	4.44	4.59	4.80	4.97	5.18	5.31	5.45	5.82	6.11	6.29	6.55	6.92	7.53	
Octubre	4.47	4.61	4.83	4.99	5.20	5.33	5.49	5.84	6.13	6.31	6.57	6.97	7.57	
Noviembre	4.50	4.64	4.85	5.02	5.23	5.36	5.53	5.89	6.17	6.35	6.60	7.04	7.62	
Diciembre	4.53	4.69	4.87	5.06	5.27	5.38	5.56	5.93	6.23	6.39	6.61	7.11	7.65	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es

Graph 11
Investment units 2010-2022 (At the end of the year)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Series1	4,53	4,69	4,87	5,06	5,27	5,38	5,56	5,93	6,23	6,39	6,61	7,11	7,65	

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es
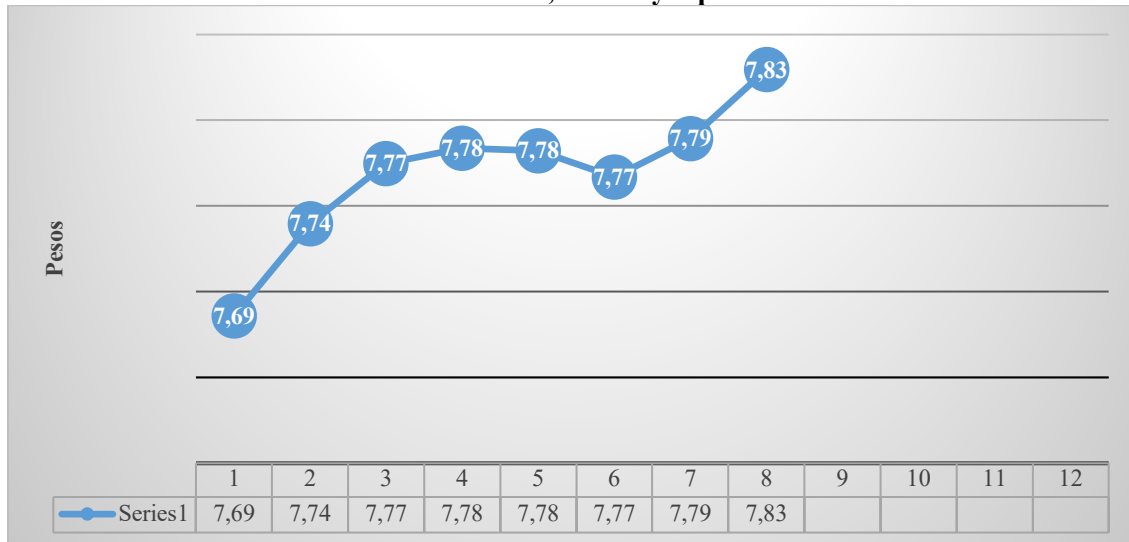
Graph 12
Investment units, January-April 2023

	1	2	3	4	5	6	7	8	9	10	11	12
Series1	7,69	7,74	7,77	7,78	7,78	7,77	7,79	7,83				

Source: Own elaboration (BANXICO, 2023).
https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es

In these uncertain times, it is very important to apply the best mathematical models to carry out the appropriate analyzes that offer us the necessary information to make business decisions related, among others, to investment, opportunity costs, market share, sales forecasts, plans business, business valuation or risk assessment.

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