



Food market hygiene in the consumer experience



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ABSTRACT

The market "Las Manueles" located in the canton Duran, Guayas province is the subject of this research, this market is new in its location, has a modern infrastructure design, but there is a paradigm about the municipal markets maintain poor hygiene, lower than supermarkets and this condition affects the experience of customers and consumers. This research aims to determine the association between the cleanliness of the "Las Manueles" market and the experience of its consumers. Survey technique was applied for data collection and the Somers coefficient was used for statistical analysis through the SPSS 22.00 program. The results indicated that there is an association between the two study variables. Through the analysis of the contingency table, 37.5 % of the consumers motivated their purchase by the observed cleanliness; they qualified the experience of their purchase as regular. The market "Las Manueles" could take awareness measures to promote an optimal hygiene culture to improve the experience of its consumers, 48.1% of them choose to buy in the market for the convenience in prices and 19.4% for the variety of products. In view of the growth of supermarkets in the country, isolating the cleaning factor as a purchasing decision could put this supply centre identified as a cultural symbol at risk.

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Introduction

Selling and buying in traditional urban markets, they are built on a foundation of folklore and accumulated history that functions as a capital of identification, allowing them to maintain a captive and permanent demand. (González, 2018).

A study of municipal markets identified the problems that traders consider most serious for their activity and, consequently, constitutes the most pressing area of opportunity, highlighting the deterioration and disabling of buildings, particularly in terms of security, signage, conservation of roofs, walls and floors, parking and internal and external cleaning of these commercial spaces. (Castillo et al., 2015). 45% of consumers considered in the research rated the cleanliness of the facilities at the "Las Manueles" market as between bad and regular.

The municipal market "Las Manueles" began operations in 2018, its infrastructure has an elevator, escalator and includes air conditioning, to reduce the consumption of electricity incurred in air conditioning is partially used air conditioners reducing the comfort environment, considering the average annual temperature in Duran is 25.7 °C and that the cleaning of the municipal markets is different from that made in supermarkets, however the preference to buy in this market is focused on prices, customer service and variety of products. The image of the market and its cleanliness affects the degree of consumer satisfaction in their shopping experience, so it is important to determine the relationship between the cleanliness of the market and the consumer experience, it allows to define the hypothesis of no independence of the variables and as an alternative hypothesis there is no independence of the variables, by obtaining these results from the association of variables the market can take the necessary measures to avoid the reduction of consumers because of poor hygiene in its infrastructure.

Customer satisfaction is part of the philosophy of quality, in recent years Ecuador has invested in the construction of municipal markets modernizing its infrastructure and not lose this local cultural symbol generating sources of employment, cleaning is one of the components of the 5S, Japanese technique of quality management, focused on visual management to increase the quality of

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products and services. It is required to maintain the municipal markets in optimal conditions of hygiene to cover the degree of customer satisfaction.

The cleanliness of the market impacts the degree of satisfaction of the consumer to generate an excellent experience in its permanence when making its purchases, maintaining its attractiveness at any moment and not only by the traditional factors as they are the prices and the variety of products.

Literature Review

Healthy market

(Castillo & Curiel, 2015) indicated that the municipal markets as supply centers, sources of employment, spaces for social cohesion, architectural heritage and cultural and symbolic nuclei of the neighborhoods or colonies where they are located. (as cited in Castillo et al., 2015). Ministerio de Salud, Ministerio Coordinador de Desarrollo Social, Asociación de Municipalidades Ecuatorianas, Organización Panamericana de la Salud, (2016) indicated that the healthy market is a productive and health-promoting public space, has hygienic conditions and guarantees the sale of nutritious and safe food. It also constitutes a space for social interaction, where users transmit experiences, traditions and customs that enrich the communities. These spaces are used to improve health from the consumption of nutritious food, typical of the areas and the season, in benefit of endogenous development towards food sovereignty. Healthy markets offer a clean, hygienic and safe environment, showing food transported, stored, handled and marketed in an adequate manner, guaranteeing people's right to healthy food (Ministerio de Salud, Ministerio Coordinador de Desarrollo Social, Asociación de Municipalidades Ecuatorianas, Organización Panamericana de la Salud, 2016).

The recognition and certification of a healthy market is a significant step towards a healthy municipality or community. Compliance with regulations, requirements and practices, together with the initiative and support of the GAD authorities, will allow wholesale and retail markets to become healthy spaces, offering and marketing good quality food, without health risks and guaranteeing prevention in the quality of life, health and nutrition of the population (Ministerio de Salud, Ministerio Coordinador de Desarrollo Social, Asociación de Municipalidades Ecuatorianas, Organización Panamericana de la Salud, 2016).

Customer Satisfaction

Clients who do not express their problems are 20 to 40 percent less loyal than those who do not have problems or who express them and are satisfied. This means that for every five customers with problems that do not complain, you are losing at least one. Problems result in lost customers and decreased revenue (Goodman, 2014) .

Incident factors in consumer behavior

According to the thought of the economist Georgescu Roegen "Man needs innovation and not saturation" gives way to the neuromarketing trend that has more followers (Cisneros, 2013).

The human being makes decisions taking into account three factors:

- Psychological state, The surrounding environment and Emotional codes.

Taking into consideration the neuroscience, the rationality of the human being and the brain, the cost-benefit analysis will not be preponderant at the moment of deciding, it will be influenced by the unconscious parts of the limbic system (tonsils, insula, thalamus, hypothalamus and the hippocampus), therefore the needs of the human being will be subordinated to the unlimited desires to please the senses.

It is about seducing the customer with the senses without saying a single word, currently is known as sensitive marketing or neuromarketing any smell, color, taste, thickness, image comes with messages directly to the subconscious brain, once there hosted the message, connections sprout that inspire the memory and cause emotions, "Smell is a fascinating way of studying the interaction of chemistry and biology" (Agapakis & Tolaas, 2012), explains that everything we perceive passes through the senses so experts today are interested in studying smell as an art that connects with sensitivity and determination to choose what to consume. In the work the neuropyramid the author explains the cerebral processes that are gestated from the moment a human being is born, and even from his conception that he perceives them from the environment and all the surroundings that surround him, information that he receives through the five senses, as well as the structure of thoughts and emotions until they become behaviours that define him as an entity different from another, making him unique and unrepeatabe (Romano, 2016). It is about knowing how molecules interact with the olfactory system for example; being a complex process transforming chemical signals into neuronal impulses and conscious perceptions in which the physics and chemistry of the molecules, the genetics and structure of the olfactory receptors, the neural architecture of the pathways that interpret odours, as well as the psychological, social and cultural context of the molecules and odours intervene (Agapakis & Tolaas, 2012).

In environments such as hotels, markets, supermarkets, airports, pharmacies, highways, classrooms, factories, just to name them brings to our brain the smell, color, taste, etc. multitude of neural images, our body can secrete sweat and other chemicals that can determine the state of mind of a subject or certain emotions, how then can attract a customer order, cleanliness, neatness, smells

good, look and feel good service, makes the customer loyalty, hence the importance of sensory marketing is one of the most powerful tools to attract customers in social networks or other mechanisms of advertising campaigns.

It is not then about having rationality when making purchases but about preponderating our senses to respond to our subconscious, many times we acquire this or that brand because of the smell, color, taste, thickness or that it sounds good, because we remember that someone was wearing it, we smelled it, we saw it, we felt it or we heard it, consequently our purchase decision obeys to a complex network in our brain.

Another sense to pay much attention is the sound coming from an object that provokes pleasant sensations at the moment of using it, the expert in electronic psychology Fiedrich Blutner explains the current sales arguments, they should be the sustainability and the quality, however the pleasant sound is not necessarily synonymous of success, it should try to incorporate to the device in question the elements identified as such, for example the sound of a vacuum cleaner, that sounds good does not mean that one should neglect the maintenance for the force when vacuuming, the sensation of cleanliness and security that it reflects in the clients (Tenhaven, 2017).

Many renowned companies invest large sums of money in experts in subtle marketing to achieve a unique fingerprint that identifies their products and that the customer follows any of the senses when deciding a purchase. Following the trends will allow businesses to generate profitability, sustainability and competitiveness in the face of the economic, social and emotional crisis that leads to the emergence of situations caused by any shocking event in the human subconscious.

The emotional economy is man himself taken in all his universe to the comprehension and interaction of his realities (Cisneros, 2013).

Hygiene – Cleaning

The 5'S methodology is a tool of continuous improvement used in the management processes; method of quality identified to the integral maintenance in the organizations, in machineries, equipment, and of the work environment of all the members of the company, the 5'S in English is Housekeeping its translation is "To be masters of house also in the work"; emphasizing the objective of the fast change when visualizing in the long term the intervention of all the people of the organization (Reyes et al., 2017). The 5'S is an abbreviation of five Japanese words: Seiri, Seiton, Seiso, Seiketsu y Shitsuke, these words in the Spanish language mean classification, order, cleanliness, standardization and discipline respectively. Cada S de las 5'S genera indicadores y marcadores creado para reconocer algún desperdicio o desperfecto en lugares de trabajo, permitiendo generar hábitos prácticos efectivos para crear cultura, afirmando y acondicionando los puestos de trabajo (Manzano & Gisbert, 2016). Seiso/Clean/ Shiny Clean: Keep workplaces, instruments and equipment clean, identifying sources of dirt. Cleaning is integrated as part of the daily work and assumed as a regular maintenance activity: "cleaning is inspection", to keep the work site in perfect condition. A schedule and a Cleaning Manual are convenient (Briozzo, 2016).

Seiketsu/Standardized Cleanup: Maintain and improve the achievements made. They are standardized operations that allow to maintain the achievements reached with the application of the first three "S" at the same time that the well-being of the personnel is improved by creating the habit of always keeping the work place impeccable. If this does not happen, it is possible that the workplace will again have unnecessary elements and the cleanliness achieved with the actions will be lost (Briozzo, 2016).

Research and Methodology

The participants in the research are the consumers of the market "Las Manuelas" in the canton of Duran, who attend around 207 daily. For the selection of the sample, the technique of systematic and quota sampling was applied to ensure the completion of the consumer survey of the seven sections of the market. A quota of 30 consumers was taken for each section and it was defined to carry out the survey of one consumer per hour, at the following times: 7 am, 8 am, 9 am, 12 am and 2 pm during one week.

Table 1: Market sections

No	Market sections	Quota
1	Food	30
2	Fruits	30
3	Vegetables	30
4	Meats	30
5	Seafood	30
6	Food court	27
7	Clothing, footwear and accessories	30
	N = n =	207

Data Analysis Technique

The model of data analysis in this research is as follows :

$$Y = F(x_1)$$

$$Y = (x_2)$$

$$Y = a + b_1X_1 + b_2X_2 + e$$

Where :

Y = Variable of consumer experience

X₁ = market cleanliness

X₂ = Market image

To determine the association of the cleanliness of the market with the consumer's shopping experience, we used relational type research, where we applied bivariate statistics, which allows us to consider two variables together and describe the relationship between them. Bivariate analyses show the relationship between variables. (Del Castillo & Olivares, 2014)

In the development of this work the graphic and statistical method was used, within the latter properly the analysis of association of variables, by means of which the Somers coefficient interpreted under Figure 1 will be obtained.

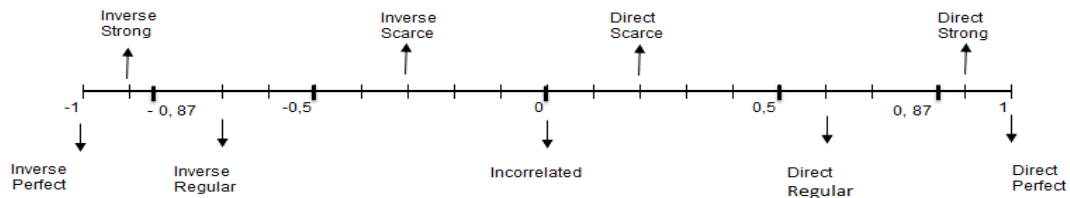


Figure 1: Variable association degree scale; *Source:* García et al. (2016)

There are 9 (nine) assumption test for this research results.

- Pie Chart
- Multi-response frequency distribution
- Sumers' Coefficient d
- Kendall's Tau-b Coefficient
- Kendall's Tau-c Coefficient
- Gamma Coefficient
- Distribución de frecuencias por multirespuestas
- Cross table
- Bar graphic

Results and Discussion

Pie Chart

Based on the image of the results of the above *Excel output*, pie char formed shows the evaluation of the market image by consumers, which obtained 21% as regular and the majority qualified it as good.

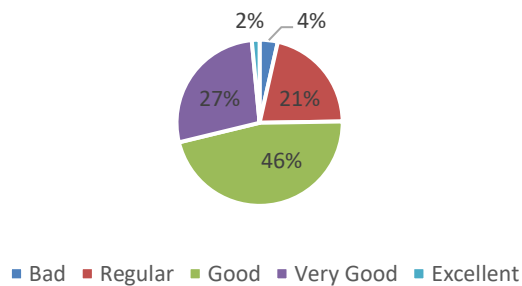


Figure 2: Evaluation of the market image.

Figure 3 shows the results of consumers' evaluation of the cleanliness, with 45% rating it as good, 38% rating it as fair and 7% rating it as poor.

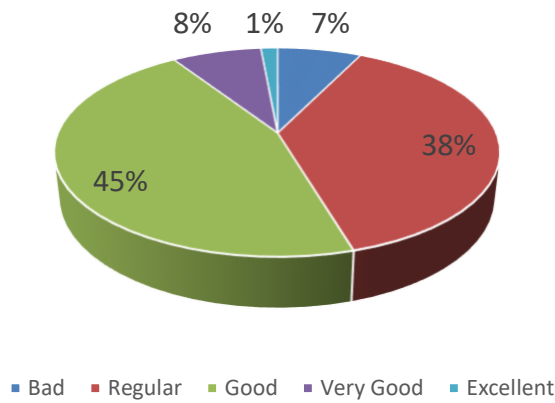


Figure 3: Evaluation of the cleanliness of the market

The 53% of consumers rated their experience in the market as good according to Figure 4, it is also noted that 27% rated it as regular.

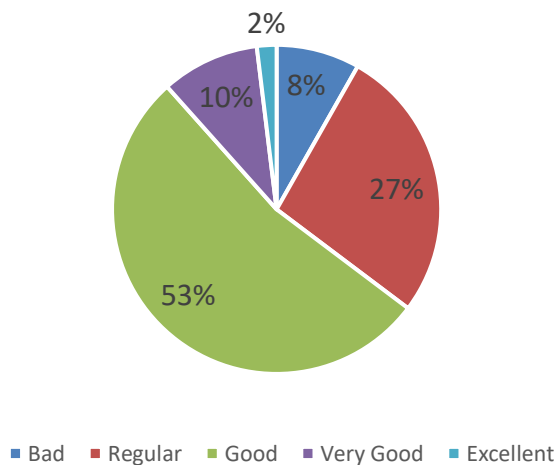


Figure 4: Consumer Experience Assessment

Somers' Coefficient d

In the following table, the value obtained using SPSS is 0.249, which indicates that the image of the market has a direct but weak association according to the scale of the degree of association of variables.

Table 2: Somers' d -Market Image Vs Consumer Experience

		Value	Asymp. Error ^a	Std. Approx. T _b	Approx. Sig.
Ordinal by ordinal	Symmetric	,249	,058	4,235	,000
	Market_image Dependent	,260	,060	4,235	,000
	Consumer_experience Dependent	,238	,056	4,235	,000

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis

The association of ordinal variables of the evaluation of market cleanliness and consumer experience was made by calculating the Somers coefficient in the SPSS program, which yielded a value of 0.342 indicating that there is an association between both variables, as shown in Table 3.

Table 3: Somers ' d - Cleaning Vs Consumer Experience

		Value	Asymp. Std. Error _a	Approx. T _b	Approx. Sig.
Ordinal by ordinal	Symmetric	,342	,061	5,507	,000
	Market_cleanliness Dependent	,344	,062	5,507	,000
	Consumer_experience Dependent	,340	,061	5,507	,000

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis

Coefficient: Kendall's Tau-b - Kendall's Tau-c –Gamma

Table 4 shows the results of Kendall's Tau - b, Tau - c Kendall and range coefficients, which also validate that there is little direct association of the market image with the experience of its consumers.

Table 4: Kendall Coefficient and Range - Market Image Vs Consumer Experience

		Value	Asymp. Std. Error _a	Approx. T _b	Approx. Sig.
Ordinal by ordinal	Kendall's Tau-b	,249	,058	4,235	,000
	Kendall's Tau-c	,204	,048	4,235	,000
	Gamma	,370	,084	4,235	,000
N of valid cases		207			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis

The Kendall and Gamma TAU coefficients were also obtained with the help of the SPSS program and the results indicate that there is a direct association between market cleanliness and consumer experience.

Table 5: Kendall and Range Coefficient - Cleaning Vs Consumer Experience

		Value	Asymp. Std. Error _a	Approx. T _b	Approx. Sig.
Ordinal by ordinal	Kendall's Tau-b	,342	,061	5,507	,000
	Kendall's Tau-c	,270	,049	5,507	,000
	Gamma	,506	,086	5,507	,000
N of valid cases		207			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis

The significance level of Kendall's Tau-b, Kendall's Tau-c and Gamma coefficients of 0.000 are less than 0.05, so the null hypothesis is rejected, because the association between the cleanliness of the market and the experience of its consumers is significant.

Multi-response frequency distribution

Table 6 shows the results obtained by SPSS from the distribution of frequencies of the reasons why they choose to buy in the municipal market, price, customer service and product variety are the three main reasons that drive consumers to buy in the "Las Manueles" market.

The price is 48.1% of weight, reason to make purchases in the market "Las Manueles", followed by 34% in customer service and variety with 19.4%. Cleanliness is not among the three most important reasons for consumers to choose to buy in the market, as it only obtained 3.9%.

Table 6: Distribution of frequencies - reasons for choosing to buy on the market

Frequency ^a		Answers		Percentage of cases
		N	Percentage	
	Internal logistics	16	4,9%	7,8%
	Infrastructure	10	3,0%	4,9%
	Technology	2	0,6%	1,0%
	Leisure space	2	0,6%	1,0%
	Security	21	6,4%	10,2%
	Promotion and marketing	6	1,8%	2,9%
	Cleaning	8	2,4%	3,9%
	Internet	1	0,3%	0,5%
	Purchasing power	20	6,1%	9,7%
	Price	99	30,1%	48,1%
	Customer Service	70	21,3%	34,0%
	Variety	40	12,2%	19,4%
	Method of payment	4	1,2%	1,9%
	Food Handling	19	5,8%	9,2%
	Disabled access	3	0,9%	1,5%
	Others	8	2,4%	3,9%
Total		329	100,0%	159,7%

a. Dichotomy group tabulated at value 1

Cross table

The table below shows that consumers who chose to shop at the municipal market for cleaning had a poor to average shopping experience of 12.5% and 37.5% respectively.

Table 7: \$MDC*Consumer_Experience cross table

Reason for purchase ^a	Logística_Interna	Recount	Consumer_Experience					Total
			1	2	3	4	5	
		Recount	4	5	6	1	0	16
		% within \$MDC	25,0%	31,3%	37,5%	6,3%	0,0%	
	Infrastructure	Recount	2	1	7	0	0	10
		% within \$MDC	20,0%	10,0%	70,0%	0,0%	0,0%	
	Technology	Recount	1	0	1	0	0	2
		% within \$MDC	50,0%	0,0%	50,0%	0,0%	0,0%	
	Leisure space	Recount	0	1	1	0	0	2
		% within \$MDC	0,0%	50,0%	50,0%	0,0%	0,0%	
	Security	Recount	1	6	9	5	0	21
		% within \$MDC	4,8%	28,6%	42,9%	23,8%	0,0%	
	Promotion and marketing	Recount	1	2	3	0	0	6
		% within \$MDC	16,7%	33,3%	50,0%	0,0%	0,0%	
	Cleaning	Recount	1	3	2	2	0	8
		% within \$MDC	12,5%	37,5%	25,0%	25,0%	0,0%	
	Internet	Recount	0	0	1	0	0	1
		% within \$MDC	0,0%	0,0%	100,0%	0,0%	0,0%	
	Purchasing power	Recount	1	7	10	1	1	20
		% within \$MDC	5,0%	35,0%	50,0%	5,0%	5,0%	
	Price	Recount	8	26	53	9	3	99
		% within \$MDC	8,1%	26,3%	53,5%	9,1%	3,0%	
	Customer Service	Recount	8	18	39	5	0	70

Table Cont'd							
	% within \$MDC	11,4%	25,7%	55,7%	7,1%	0,0%	
Variety	Recount	1	13	22	4	0	40
	% within \$MDC	2,5%	32,5%	55,0%	10,0%	0,0%	
Method of payment	Recount	0	2	1	1	0	4
	% within \$MDC	0,0%	50,0%	25,0%	25,0%	0,0%	
Food Handling	Recount	2	4	10	3	0	19
	% within \$MDC	10,5%	21,1%	52,6%	15,8%	0,0%	
Disabled access	Recount	0	1	2	0	0	3
	% within \$MDC	0,0%	33,3%	66,7%	0,0%	0,0%	
Others	Recount	0	3	5	0	0	8
	% within \$MDC	0,0%	37,5%	62,5%	0,0%	0,0%	
Total	Recount	17	56	110	19	4	206

Percentages and totals are based on respondents.

a. Tabulated dichotomy group at value 1.

Bar graphic

In the following figure it can be seen that only the reason for the cleaning decision and the payment method had a low weight in the evaluation of the consumer's experience to a good degree.

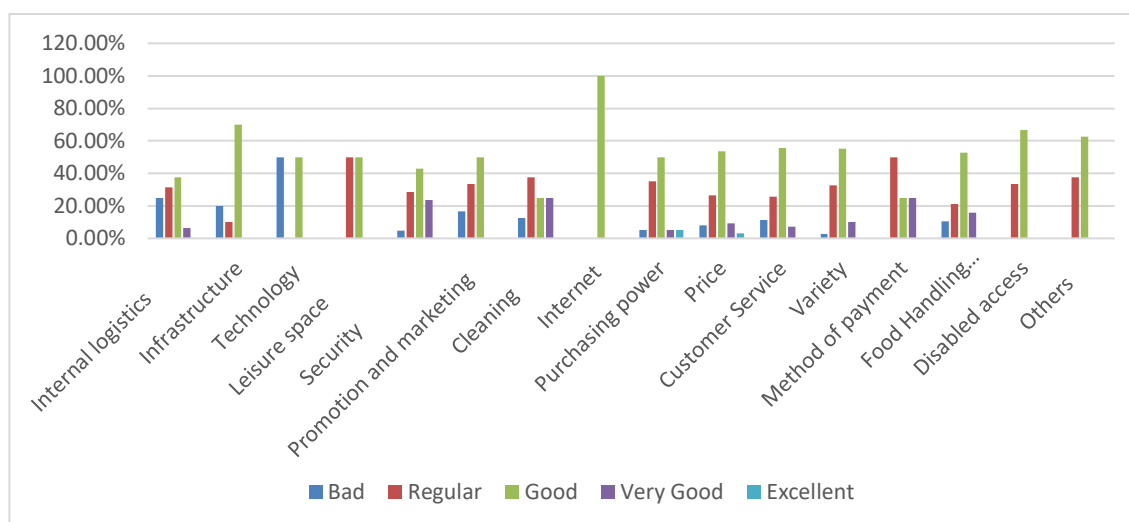


Figure 5: Cross Variable Comparison - Reason for Purchase Vs Consumer Experience

Conclusions

This research concludes that market cleanliness has scarce direct association with the degree of consumer satisfaction in their shopping experience, the image of the market has little direct association with the degree of consumer satisfaction in the shopping experience, consumers who decided to buy at the municipal market because of its cleanliness, evaluated their buying experience as between bad and regular, and price, customer service and product variety are among the three main reasons for shopping at the "Las Manueles" municipal market.

References

- Agapakis, C., & Tolaas, S. (2012). Smelling in multiple dimensions. *Current Opinion in Chemical Biology*, Current Opinion in Chemical Biology. <https://doi.org/10.1016/j.cbpa.2012.10.035>
- Briozzo, G. (2016). Herramienta de mejora de la calidad. *Rev. Hosp. Mat. Inf. Ramón Sardá*, 3-11.

- Castillo Girón, V. M., Ayala Ramírez, S. A., Vargas Portillo, P. V., & Monroy Antón, A. J. (2015). Los Mercados Municipales de la zona Metropolitana de Guadalajara: condiciones actuales y opciones de mejora. *Revista Internacional del Mundo Económico y del Derecho*, 10, 1-46.
- Cisneros Henríquez, A. (2013). *Nerumarketing y neuroeconomía: código emocional del consumidor* (2a. ed.). Colombia: Ecoe Ediciones, E-ISBN 9789587710229.
- Del Castillo, C. C., & Olivares Orozco, S. (2014). *Metodología de Investigación*. México: Grupo Editorial Patria, E- ISBN 9786074388763.
- García Cedeño, W. O. (2018). Propuesta del modelo de gestión por procesos “mercados más limpios y sustentables” para los mercados municipales del Distrito Metropolitano de Quito. Bachelor's thesis, PUCE
- García Ramos, J. A., Ramoz González, C. D., & Ruiz Garzón, G. (2016). *Estadística empresarial*. Servicio de Publicaciones de la Universidad de Cádiz.
- González, F. (2018). Tipología de consumidores y modalidades de mercado en México: La disputa por la demanda. *Scripta Ethnologica*, 40, 39-61.
- Goodman, J. (2014). *Atención estratégica al cliente*. Pluma Digital Ediciones.
- Manzano Ramírez, M., & Gisbert Soler, V. (2016). Lean Manufacturing : implantación 5S. *3C Tecnología: glosas de innovación aplicadas a la pyme*, 5 (4), 18-26.
- Reyes, J., Aguilar, L., Hernández, J., Mejía, A., & Piñero, A. (2017). La Metodología 5S como estrategia para la mejora continua en industrias del Ecuador y su impacto en la Seguridad y Salud Laboral. *Polo del Conocimiento*, 1041-1059.
- Romano, J. (2016). *The neuropyramid: foundations of neuromarketing*. Retrieved from <https://ebookcentral.proquest.com/lib/uguaquilsp/detail.action?docID=5425711>.
- Secretaría Técnica Plan Toda una Vida. (2016, Abril 25). *Secretaría Técnica Plan Toda una Vida*. Retrieved from https://www.todaunavida.gob.ec/wp-content/uploads/downloads/2016/05/Manual_Mercados_Saludables_final-25.04.2016.pdf
- Tenhaven, J. (2017, febrero 9). *Poqué compramos*. Retrieved from Seducir al Consumidor | Documental - La Noche Temática: <https://www.youtube.com/watch?v=JD12oFerUM>