

# Exploring Coffee Preferences: An Analysis of Consumption Trends among University Students in Costa Rica

Robert Hunter. PhD<sup>1</sup> , Víctor Emilio Jiménez Marín. Lic<sup>1</sup> , José Guillermo Berlioz Pastor. PhD<sup>2</sup> , Raúl J. Chang T. PhD<sup>3</sup> 

1: Universidad Latina de Costa Rica, Costa Rica, roberto.hunter@ulatina.net; 1: Universidad Latina de Costa Rica, Costa Rica, victor.jimenez@ulatina.net; 2: Universidad Tecnológica de Centroamérica - UNITEC – Honduras, jose.berlioz@unitec.edu.hn; 3: Universidad Latina de Costa Rica, Costa Rica, raul.chang@ulatina.net

**Abstract**– *Caffeine is widely consumed among students due to its cognitive and physical enhancing effects. However, little is known about the consumption pattern of different caffeinated products among university students in Costa Rica. Data collection involved administering a questionnaire intended to measure students' coffee drinking preferences. To carry out this study, a sample of university students from the Universidad Latina of Costa Rica was selected. Furthermore, it should be noted that a significant percentage of people abstain from coffee consumption. Reasons for abstaining include loss of taste for coffee or concern about its impact on health. Interestingly, about a third of participants have little knowledge about medical products containing caffeine, which seemed to affect the level of consumption in the student population. The results of the research lead us to determine the evolution of consumer priorities, especially university students, with respect to coffee consumption. The emphasis on flavor and atmosphere as the most important factors (51.15% and 48.84 respectively) underlines the importance of creating a sensory experience in coffee consumption.*

**Keywords:** *Coffee, Consumption, Productions, Trends.*

## I. INTRODUCTION

Caffeine is one of the most consumed food additives and supplements in the world. Young adults widely consume caffeinated beverages, for example, coffee or tea, caffeinated energy drinks, and soft drinks, to improve their bodily functions, such as increasing alertness, decreasing drowsiness, and stimulating attention and arousal [1]. This study provides valuable information on the frequency of caffeine consumption among the young student population, facilitating the understanding of coffee consumption habits among college students [2]. These findings may be useful in developing creative marketing strategies that could ultimately benefit Costa Rican coffee producers [3]. Kenger points out in his article that there are limited studies on the effects of coffee consumption, which has become part of popular culture and is very common among young people, on the attention levels of female college students [4].

The existing literature indicates that low and moderate doses of caffeine (20 to 400 mg/day) could improve feelings of well-being and increase motivation and energy for work without adverse effects on behavior [5]. Therefore, coffee consumption has a direct effect on the value chain that is based on the establishment of work networks that generate added value. The insertion of the coffee effect in the networks will depend largely on the acceptance they have in the student community, since this will be what determines the benefits obtained through linking with them [6]. The coffee value chain begins with the cultivation of the coffee tree, which in many sectors of Central America represents a way of life for both producers and consumers. Figure 1 generalizes the coffee value chain with the most important processes. This coffee industry brings important benefits to communities, since it promotes the creation of organizations such as cooperatives, which generate employment, train coffee growers, develop suppliers and are responsible for processing coffee for subsequent export [7].

The coffee value chain involves multiple actors, but two of them stand out as essential in its operation. First, there are the coffee growers, who maintain interconnected relationships with all the other actors in the chain. Even coffee pulp waste is being used to generate energy and make this a green process [8]. Value chain demand and governance patterns are a key factor in understanding the different actors in the value chain, starting with the consumer as the "first" and not the "last" actor in the industry [9].

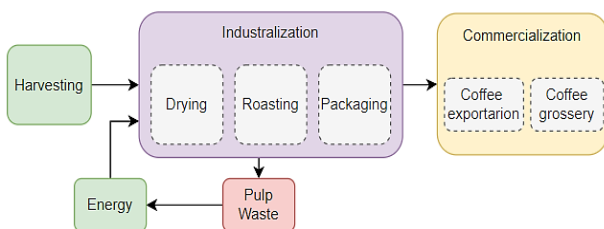
The coffee industry has generated benefits at a macro and microeconomic level in countries like Costa Rica, but, on the other hand, its great dynamism and the possible effect of other factors could be inducing changes in individual consumer behaviors, generating new needs and requirements that are important to know for the sector [2]. On the other hand, end consumers play a crucial role in determining the price of coffee and its demand in the market. Although it is a fact that the international price of coffee is not directly related to coffee production in Central American countries, the flavor of coffee is positioned as one of the most crucial factors to obtain the distinction of "Cup of Excellence" in the coffee industry.

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**ISSN, ISBN:**(to be inserted by LACCEI).  
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Currently, the Cup of Excellence program aims to search, select and award the best quality specialty coffees in the world [10]. By receiving an outstanding Cup of Excellence rating, coffee producers gain better opportunities to negotiate the price of their coffee. This raises one of the most relevant questions for coffee producers: should they export their coffee and assume the risks associated with the international price, or, on the contrary, opt for local sales to maximize profitability per pound of coffee?

To address this issue, it is imperative to acquire a deep understanding of consumer tastes and preferences, in order to understand how they perceive the coffee market and what potential benefits can be derived from such knowledge. The present study aims to analyze coffee consumption in Costa Rica within the national market, focusing on the population of students at the Universidad Latina de Costa Rica (Ulatina) located in the Greater Metropolitan Area (GAM). The study seeks to identify the perceptions of university students who consume coffee regarding their tastes and preferences. Additionally, it proposes to examine coffee consumption trends among students in emerging markets and describe coffee consumption trends in innovative coffee shops located in the GAM. Through this research, we seek to collect information that serves as a basis for understanding the coffee purchasing and consumption behavior of Ulatina students, as well as assessing their opinion on consumption trends in innovative coffee shops.

Figure 1 Diagram of key processes in the coffee value chain



Furthermore, this study aims to analyze whether university students perceive that coffee consumption has benefits for their health and, therefore, for their academic performance [11]. Coffee, the second most important commercial product after oil, is consumed by 70-80% of the world's population, and contains significant amounts of bioactive components such as caffeine, the most consumed psychoactive agent. Moderate coffee consumption is accompanied by beneficial effects, including improved cognitive performance, reduction in blood pressure and insulin resistance, and control of body weight. In addition, it is related to a decreased risk of cardiovascular diseases, type 2 diabetes mellitus, cancer, liver and neurological diseases, and decreased mortality from all causes [11].

In this context, understanding consumer trends is presented as a fundamental variable, since these have evolved to become essential tools that allow brands and various commercial establishments to carry out critical analyzes of the products and services they offer to their customers. This, in turn, gives them the ability to stay ahead of the competition and stay at the forefront of innovation. Given the growing demands of the market, trend analysis has become indispensable in numerous strategic processes, generating important advantages, and focusing on the constant improvement of customer service, an aspect of vital importance in the current context.

## II. LITERATURE REVIEW

The primary studies related to the trend of coffee consumption found and published do not make direct reference to the consumption of caffeine by university students, but rather to the trend of production and consumption [2]. So far, no SLR has been found with the direct purpose of the topic under investigation [12]. Consequently, other researchers potentially interested in the same topic could begin their work based on this review, saving time and research resources to focus on proposals and evaluations of new approaches, using existing works as a basis.

The essential role of research is basically to investigate the causal relationships of phenomena and aspects of reality, this being the principle of the transmission of knowledge from universities to the productive sectors. In developing countries, it is not common to find that companies are in a position to give value to research results, because their needs are much more specific, although they still require novel research results [13]. . The trend that exists regarding the production and consumption of coffee, especially now when this product is a drink with great value and social reach, generating a coffee culture around the world [14]. As a product of this research, the issue of Costa Rican coffee consumption trends in the national market in the Ulatina population of the GAM must be addressed, so the marketing trend must be considered for the present study. The method for carrying it out consists of the research principles that allow obtaining the most significant contributions generated on the topic in recent years.

### A. Consumer behavior

According to Ruiz and Grande (2013) they address consumer behavior: As a focus on consumer perceptions, and understanding the direction of their attitudes, and decision making based on their preferences for tangible products or services with their moments of truth. Going deeper into individual decision-making behavior, agents of influence belonging to belonging or aspirational groups. Trying to have a guide for marketing decision making [15]. Consumers make many purchasing decisions each day, and the purchasing decision is the focus of the marketer's effort. Most large

companies do research on consumer purchasing decisions in great detail to answer questions about what consumers buy, where, how, how much, when, and why they buy it. Marketers can study consumers' actual purchases to find out what, where, and how much they buy. But the why of consumer purchasing behavior is not obvious: the answers are hidden deep in the consumer's mind. Often, consumers themselves do not know exactly what influences their purchases [16].

### B. Atmosphere

Reboratti defines environment as the social and environmental elements external to a society that at a given time mark behaviors [17]. For Begon, Townsend and Harper, environment is related to the evolution of society in its relationship to changes in the environment, in relation to its diet and consumption habits of chemical, organic, and processed products [18].

According to the previous quotes, it is indicated that the environment includes everything that surrounds an organism or a population and that can influence its survival, reproduction and adaptation.

### C. Habits

Wood & Neal mention that there is an inheritance from the family nucleus in terms of tastes and preferences that mark the behavior of consumers in terms of choosing brands in products and services permanently and unconsciously [19]. This research aims to identify coffee consumption habits, because it is important to understand how consumers choose and buy coffee, how they prepare it, and also time to visualize the way they consume it and understand what factors influence their decisions. when buying or consuming our grain of gold.

### D. Satisfaction

According to Kotler & Keller, satisfaction corresponds to a feeling of pleasure or disappointment that results from comparing the product experience with previous expectations of benefits. If the results are less than expectations, the client is dissatisfied. [16]. Furthermore, Sheik & Ali consider satisfaction to be the customer's perception of full compliance with all important aspects in the delivery of a service. Customer satisfaction is very important, the above because a satisfied customer most of the time repeats their purchase and generally attracts more customers [20].

## II. METHODOLOGY

This was a quantitative, cross-sectional study with a descriptive design examining a convenience sample of students from the Universidad Latina de Costa Rica (Ulatina). Using an interactive methodology, also known as action research [21], it

is a study in which the researcher, in a planned manner, transforms the phenomenon studied into a desired state, with the purpose of achieving the established objectives that allow research to be carried out. market aimed at identifying tastes and preferences in coffee consumption in Costa Rica, specifically in the national market, focusing on the university population of Ulatina. In addition, coffee consumption trends in innovative coffee shops are analyzed. It is relevant to highlight that a questionnaire is used as a research instrument to collect data.

To carry out this study, a sample of university students from Ulatina was selected. The population of interest is the group of people who consume coffee in Costa Rica at the national level, specifically among the students of this university. All respondents were students of active courses at the faculties of Administrative Sciences and Hospitality. A message was sent using social networks to students with an invitation to participate in the survey. A link to a website was included in the message so respondents could access and participate. Given that a generic research question was posed to determine the trend of caffeine consumption in higher education teaching models, it was not considered relevant to verify the school or grade to which the student belonged. Age or sex is not information to consider in this investigation [22]. The population information was obtained through the administrative assistant of the Faculty of Business and Hospitality of Ulatina, who through an email provided a list of 2,148 students. The questionnaire was applied to a total of 71 students, following a sampling formula detailed below, with the objective of evaluating their tastes and preferences in relation to coffee consumption.

$$n = \frac{Z^2 * P * Q * N}{E^2 * (N - 1) + Z^2 * P * Q}$$

Where Z equals the confidence level, P is the homogeneity, Q equals the heterogeneity of the population, E is the margin of error and N is the total population. Next, the statistical formula mentioned above will be developed to define the finite sample for this research.

For this study, it was decided to use non-probabilistic sampling, due to the availability and accessibility of the university population studied. To calculate the sample size, a confidence level of 95%, a margin of error of 5%, homogeneity of 0.95 and heterogeneity of 0.05 were considered. These parameters allowed us to determine the appropriate sample to carry out the research in a representative and reliable manner using [7].

$$n = \frac{(3,84 \times 0,95 \times 0,05 \times 2146)}{0,0025 (2146 - 1) + (3,84 \times 0,95 \times 0,05)}$$

$$n = \frac{392}{5,54}$$

$$n = 71$$

#### A. Study tool

The questionnaire used in the study is a pre-validated survey. All study participants were administered this survey individually via an online link to students from different majors. Participants were briefly informed about the objectives of the study at the beginning of the questionnaire. The survey was administered in Spanish. It included closed-ended questions containing four sections: sample characteristics and demographics, caffeine consumption patterns, caffeine expectations, and social expectations and purposes of caffeine consumption.

The questionnaire that is applied uses the closed question method, due to the ease of tabulating the answers and mainly the analysis of the results, which allows conclusions and recommendations to be offered in a more effective and accurate way.

According to Sampieri, when using closed questions there is an intention to delimit the responses of the research subjects to the indicators of the variables of the topic under study [23].

It is important to indicate that each person surveyed has the freedom to express their degree of preference within the response options or parameters of a scale; therefore, the Likert scale is used.

According to EAE (2018), this Likert scale method measures perception scales and preferences within a consumer's attitudes towards a product or service.

*Table1 Breakdown of the questionnaire applied to all coffee consumers*

Item	Nature	Reagent	Indicator
1	Closed dichotomous	Geographic location	Nominal
2	Closed dichotomous	Gender	Interval
3	Closed polytomous	Age	Of reason
4	Closed dichotomous	coffee drinker	Nominal
5	Closed polytomous Likert scale	Consume coffee in the future	Of reason
6	Closed dichotomous filter type	Has consumed coffee	Of reason
7	Closed polytomous Likert scale	I stop consuming it	Ordinal qualitative
8	Closed polytomous Likert scale	Type of coffee you consume	Of reason
9	Closed polytomous Likert scale	Origin of the grain and the process	Ordinal
10	Closed polytomous Likert scale	Caffeine content	Of reason
11	Closed polytomous Likert scale	How consuming	Ordinal qualitative
12	Closed polytomous Likert scale	Consume a new type of coffee	Ordinal qualitative
13	Closed dichotomous	Favorite place to eat	Of reason
14	Closed polytomous	Buying coffee more frequently	Of reason

15	Closed polytomous Likert scale	Importance of flavor	Of reason
16	Closed polytomous Likert scale	Buying coffee in supermarkets	Of reason
17	Closed polytomous	The type of coffee you buy	Of reason
18	Closed polytomous Likert scale	The price of coffee	Of reason
19	Closed polytomous	coffee brands	Interval
20	Closed polytomous	Regions, quality and export	Of reason
21	Closed polytomous Likert scale	Coffee consumption in Gourmet-type coffee shops	Of reason
22	Closed polytomous	Coffee shops how often	Of reason
23	Closed polytomous Likert scale	Importance of environment and decoration	Of reason
24	Closed polytomous Likert scale	Customer service level	Of reason
25	Closed polytomous Likert scale	Availability of food options	Of reason
26	Closed polytomous	quality coffee	Of reason
27	Closed polytomous Likert scale	Spend more money on unique or specialty coffee drinks	Of reason

### B. Reliability testing of the study questionnaire

The questionnaire was further revised based on a reliability test conducted as a pilot study on 40 students to achieve the most acceptable Cronbach values. In addition, a preliminary pilot test was carried out to ensure the comprehensibility of the questionnaire.

### III. RESEARCH QUESTION

This research will be carried out due to the need presented by the (ICAFE)[24] for a study to analyze the consumption of Costa Rican coffee in the national market in the Ulatina population of San Jose, identifying the perception of university consumers. of coffee on tastes and preferences [25], in the same way, it is desired to show the trends of coffee consumption in university students in emerging markets, in addition to describing the trends of coffee consumption in innovative coffee shops in the Greater Metropolitan Area (GAM) of San José [26].

Through the study, the aim is to obtain information that serves as a basis for studying the purchasing and consumption behavior of coffee in Ulatina university students of the GAM. In addition, to know their opinion on consumer trends in innovative coffee shops. The research approach aims to answer

the research question “What are the tastes, preferences and coffee consumption trends in innovative coffee shops?”

### A. Research questions

Know the inclination regarding the coffee that the customers of these cafes consume the most at the same time, know if they choose to consume national or foreign coffee. This in order to establish strategies that can favor commerce to motivate university students to consume national coffee.

**RQ1:** It influences the perception of the tastes and preferences of the Ulatina population of the GAM regarding coffee consumption.

**RQ2:** Modern distribution networks compared to traditional channels facilitate coffee consumption in the population of Ulatina del GAM

**RQ3:** Coffee consumption in innovative coffee shops in the Greater Metropolitan Area (GAM) of San José is a trend.

### IV. RESULTS

In this section, the results obtained from the tools specified in the previous sections are analyzed, with the objective of structuring and being able to transfer the corresponding

conclusions and recommendations regarding the analysis of the tastes and preferences for coffee consumption of the Ulatina population of the GAM and of the coffee. consumption trends in innovative coffee shops located within the same geographic location.

The population that is represented with the greatest number of responses is the female gender, which shows greater willingness than men to help and complete the questionnaire applied on tastes and preferences. This is significant because by knowing this behavior on the part of the population, marketing strategies can be developed to attract participants and have more equitable participation between genders.

Table 2 shows that only 61% of the population stated that they do consume coffee, the other 39% stated that they do not currently consume coffee; However, of those who stated that they do not consume coffee, 82% of this population are people between 19 and 24 years old, this is important because it is a very young population which affirms in a percentage of 74% that it is unlikely that they will consume coffee In the future, there is another 26% who are undecided in the consultation carried out.

**Table 2 Coffee consumption by age**

Ranks old	Consumers	%	No consumers	%	Total	%
< 18	1	2.28%	2	7.41%	3	4.29%
19 to 24	20	46.20%	22	81.48%	42	58.57%
25 to 30	8	18.74%	1	3.70%	9	12.86%
31 to 35	8	18.70%	2	7.41%	10	14.29%
36 to 40	3	7.04%	0	0%	3	4.29%
14 to 45	2	4.69%	0	0%	2	2.86%
+ 45	1	2.35%	0	0%	1	1.43%
Total	43	61.43%	27	38.57%	71	100%

Table 3 shows the university population to which the questionnaire was applied, revealing that 78% were coffee consumers; However, of the 78% who revealed that they did consume coffee in the past, there is a percentage of 12.50% of the population who stated that they stopped consuming it because it is not good for their health; The above is important because the population is made aware of coffee consumption and with the information provided, educate the population so that this is not a factor for them to stop drinking our golden grain.

**Table 2 Important factors that determine coffee consumption**

Have you consumed coffee?			Why did you stop consuming it?		
No	6	22%	I don't know	9	43.75%
Yeah	21	78%	I stopped liking it	9	43.75%
			Not good for health	3	12.50%
Total	27	100%		21	100%

Furthermore, Table 4 shows that 88% of the coffee-consuming population is more interested in the taste of coffee than in other factors such as price, variety, and origin. This is of utmost importance because it opens a possibility in terms of the quality of the flavor of the coffee offered on the market.

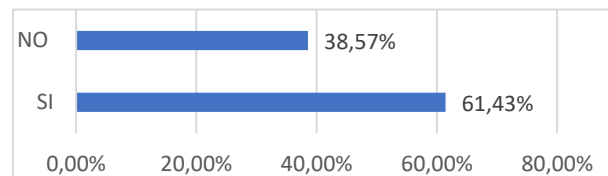
**Table 4 shows that % of the coffee-consuming**

Importance	Taste	Price	Pricing environment
The most important	51.15%	16.28%	48.84%
Important	37.21%	25.58%	23.26%
Indifferent	6.98%	39.53%	20.93%
Less important	2.33%	6.98%	4.66%
It's not important at all	2.33%	11.63%	2.33%

For students, the most important issues were taste (51.15%) and atmosphere (48.84%). The price was indifferent with 39%, although 25.58% considered it important. Therefore, the importance of attractive and focused advertising is highlighted to attract this population.

It is worth mentioning that a total of 43 people indicated that they are coffee consumers, reflecting a percentage of 61.43% and 27 people reported that they are not consumers, for 38.57%. In the following graph you can see what is indicated in this question in percentages

**Figure2 Number of populations that indicates whether they are coffee consumers.**

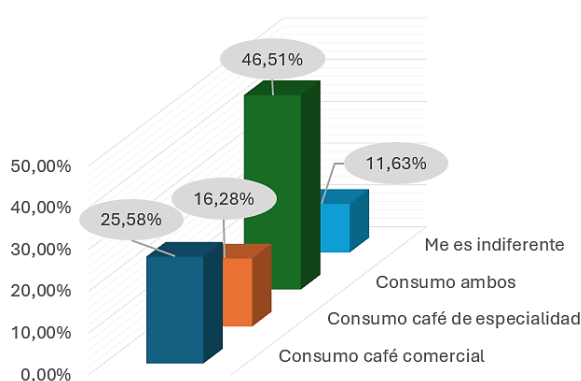




In the question related to the type of coffee consumed, it is indicated that specialty coffee focuses on the unique quality and flavor of the coffee, while commercial coffee focuses on mass and uniform production of coffee to meet demand. From the market. Knowing the difference in the consultation was with reference to whether you consume commercial coffee or prefer specialty coffee.

It should be mentioned that 20 of the 43 people who do consume coffee indicated that they consume both commercial and specialty coffee, this reflects 46.51% of the people consulted, in addition, 11 of the people report consuming only commercial coffee for a percentage of 25.58%, 7 people reveal that they consume only specialty coffee for a percentage of 16.28% and only 5 people indicate that they are indifferent to the coffee they consume, this being the lowest percentage of 11.63%. The above is relevant because it is currently evident in the study population that there are more coffee consumers choosing to consume both specialty coffee and commercial coffee. This act is important for gourmet coffee merchants, because this population is with an increasing consumer trend. The following graph shows the percentages indicated in this paragraph.

**Figure3 Preference consultation regarding the type of coffee of the studied population, whether they consume specialty coffee or commercial coffee.**



#### IV. CONCLUSION

The results of the study offer valuable information about the coffee consumption patterns and preferences of the surveyed population. First of all, the observation that women show a greater willingness to participate in research on tastes and preferences compared to men is crucial. This information allows for the development of specific marketing strategies, ensuring more balanced representation between genders in future studies. Second, the data reveals a significant trend among the younger demographic, where 82% of people ages 19 to 24 do not consume coffee, and 74% of them express that they are unlikely to consume it in the future.

This finding highlights a potential shift in the coffee market, indicating the need for the industry to diversify its products or develop marketing campaigns that appeal to the tastes and preferences of younger generations. Additionally, 12.5% stopped drinking coffee due to health problems, clearly this represents an excellent educational opportunity. Companies can educate the public about the benefits of drinking coffee, which could dispel misconceptions and encourage more people to enjoy coffee responsibly.

Additionally, the survey results shed light on the evolving priorities of consumers, especially college students, regarding coffee consumption. The emphasis on flavor and atmosphere as the most important factors (51.15% and 48.84 respectively) underlines the importance of creating a sensory experience in coffee consumption. Furthermore, the relatively low importance given to price (16.28% consider it more important) suggests that consumers are willing to pay for quality and a satisfactory experience. This underlines the importance of targeted and aesthetically appealing advertising to capture the attention of college students.

Additionally, data indicating that a substantial portion of the population (35%) values the origin and processing methods of coffee over caffeine content presents an opportunity for coffee investors to focus on transparent sourcing and identify their unique production processes. In conclusion, companies in the coffee industry can use this knowledge to adapt their products, marketing and educational efforts, ensuring that they align with the changing preferences and concerns of their target audience and, by meeting consumer preferences in a way effectively, the coffee industry is set to expand, generating higher sales and income, leading to greater productivity and competitiveness, attracting investment and ultimately boosting the country's GDP.

#### REFERENCES

- [1] A. Ajjimaporn, P. Noppongsakit, P. Ramyarangsi, V. Siripornpanich, and R. Chauchaiyakul, "A low-dose of caffeine suppresses EEG alpha power and improves working memory in healthy University males," *Physiol. Behav.*, vol. 256, p. 113955, Nov. 2022, doi: 10.1016/j.physbeh.2022.113955.
- [2] Z. Kharaba et al., "Caffeine Consumption among Various University Students in the UAE, Exploring the Frequencies, Different Sources and Reporting Adverse Effects and Withdrawal Symptoms", *J. Nutr. Metab.*, vol. 2022, 2022, doi: 10.1155/2022/5762299.
- [3] K. Villalobos Mora, A. Delgado Ballesteros, G. Jiménez Porras, R. Díaz Porras, and A. Quirós Durán, "Study on consumer behavior: coffee consumption and purchasing habits in Costa Rica", Nov. 2022, Accessed: February 19, 2024. [Online]. Available at: <https://repositorio.una.ac.cr/handle/11056/24395>

- [4] EB Kenger et al., "The effect of caffeine consumption on attention performance in female students at the faculty of health sciences", *Nutr. Food Sci.*, vol. 53, no. 5, pp. 837-848, 2023, doi: 10.1108/NFS-08-2022-0268.
- [5] S. Fenu and E. Acquas, "Chapter 113 - Behavioral Pharmacology of Caffeine", in *Tea in Health and Disease Prevention*, VR Preedy, Ed., Academic Press, 2013, pp. 1349-1362. doi: 10.1016/B978-0-12-384937-3.00113-0.
- [6] A. Luna González, R. Díaz Porras, V. Morales Ramos, and Y. Mayett Moreno, "Coffee farmers rethinking their participation in the coffee chain, Cases of Costa Rica and Mexico", *Economic Policy for Development. Sosten.*, vol. 4, no. 1, p. 1, Dec. 2018, doi: 10.15359/peds.4-1.3.
- [7] JL Ordonez-Avila, HO Perdomo, and ME Perdomo, "Profitability of coffee production and its impact on the sustainability of family businesses in Honduras," in *Proceedings of the 3rd LACCEI International Multiconference on Entrepreneurship, Innovation and Regional Development (LEIRD 2023): "Igniting the Spark of Innovation: Emerging Trends, Disruptive Technologies, and Innovative Models for Business Success"*, Latin American and Caribbean Consortium of Engineering Institutions, 2023. doi: 10.18687/LEIRD2023.1.1.360.
- [8] "Biogas production from honey water and coffee pulp."
- [9] LFS In, "The powerful role of intangible assets in the coffee value chain." Accessed: February 19, 2024. [Online]. Available at: <https://www.wipo.int/publications/es/details.jsp?id=4229>
- [10] EA Trigueros R., «Establishment of the Zamorano Cup of Excellence Protocol», *Zamorano: Escuela Agrícola Panamericana*, 2019., 2019. Accessed: February 19, 2024. [Online]. Available at: <https://bdigital.zamorano.edu/handle/11036/6623>
- [11] BG Leyva, MTD Armas, RCV Cabodevilla, and MAM Cruz, "Effects of coffee consumption on health", *Medi Sur*, vol. 19, no 3, pp. 492-502, 2021.
- [12] MA Rojas-Sánchez, PR Palos-Sánchez, and JA Folgado-Fernández, «Systematic literature review and bibliometric analysis on virtual reality and education», *Educ. Inf. Technol.*, vol. 28, no 1, pp. 155-192, Jan. 2023, doi: 10.1007/s10639-022-11167-5.
- [13] RD Santos Rocha and M. Fantinato, «The use of software product lines for business process management: A systematic literature review», *Inf. Softw. Technol.*, vol. 55, no. 8, pp. 1355-1373, Aug. 2013, doi: 10.1016/j.infsof.2013.02.007.
- [14] LMB Osorio, RYS Escalante, CM Carvajal, and MD Cristancho, "Analysis of trends in coffee production and consumption at an international level", *Visión Int. Cúcuta*, pp. 22-26, Jun. 2019, doi: 10.22463/27111121.2369.
- [15] SR de Maya and IG Esteban, *Cases of consumer behavior: Reflections for marketing management*. ESIC, 2013.
- [16] P. Kotler and G. Armstrong, *Fundamentals of Marketing*. Pearson Education, 2012.
- [17] CE Reboratti, *Environment and society: concepts and relationships*. Ariel, 2000.
- [18] M. Begon, CR Townsend, and JL Harper, *Ecology: From Individuals to Ecosystems*. Wiley, 2009.
- [19] H. Fletcher-Wood, *Habits of Success: Getting Every Student Learning*. Routledge, 2021.
- [20] A. sheikh Ali and M. Mohamed Ali, "Service Quality and Student Loyalty: The Mediating Role of Student Satisfaction," vol. 6, pp. 2415-1246, Oct. 2019.
- [21] C. Ortega, "What is interactive research?", *Question Pro*. Accessed: February 19, 2024. [Online]. Available at: <https://www.questionpro.com/blog/es/investigacion-interactiva/>
- [22] Chang-Tam, R. et al 2022, Factors that affect the use of educational ICTs in university students in Costa Rica according to the UTAUT2 model. 2022. doi: 10.18687/LEIRD2022.1.1.98.
- [23] « Hernandez, Fernandez and Baptista-Scientific Research Methodology 6th ed.pdf». Accessed: February 21, 2024. [Online]. Available at: <https://www.esup.edu.pe/wp-content/uploads/2020/12/2.%20Hernandez,%20Fernandez%20y%20Baptista-Metodolog%C3%ADa%20Investigacion%20Cientifica%206ta%20ed.pdf>
- [24] RA Diaz Porras, A. Delgado Ballesteros, and KH Villalobos Moya, "Panorama of the Costa Rican roasted coffee industry," Dec. 2021, Accessed: February 21, 2024. [Online]. Available at: <https://repositorio.una.ac.cr/handle/11056/22273>
- [25] ZG López and FJS Sánchez, «CONSUMER PERCEPTIONS OF ENERGY DRINKS».
- [26] CM Sánchez Ortega, "Proposal for a Volcafe Costa Rica production system for the creation of differentiated microlots as a business strategy", *San José Costa Rica Univ. Costa Rica*, 2018, Accessed: February 21, 2024. [Online]. Available at: <https://kerwa.ucr.ac.cr/handle/10669/75671>