Evaluation of Visual Behavior and Consumer Preferences of Zamorano Brand Cold Cuts in Tegucigalpa, Honduras

Darlin Gabriela Cadenas Lorenzana[1]; Rodrigo Alejandro Villa Guaranda[2]; Martin Alberto Leal Plata[3]; Marvin Josue Calix Morales[4]; Carlos Ramón Varela Pinto[5]
[1-5]Universidad Zamorano, Honduras, *darlin.cadenas@est.zamorano.edu, rodrigo.villa@est.zamorano.edu, mleal@zamorano.edu, mjcalix@zamorano.edu, cvarela@zamorano.edu*

Abstract: ***The decline in sales of Zamorano cold cuts in supermarkets in Tegucigalpa highlighted the need to evaluate factors that could be affecting their positioning. The purpose of this study was to identify which label attracts the most visual attention from consumers, determining areas for improvement and analyzing the factors that influence purchasing decisions. The research was conducted in the Más x Menos, La Colonia No. 1, and No. 10 supermarkets, using eye-tracking technology with iMotions software. Metrics such as the number of revisits and time spent per area of interest were recorded. In addition, emotions were measured using facial recognition, and a structured survey with Likert and ordinal scales was administered. The results revealed that the label prototype stood out for its greater visual appeal, allowing consumers to better visualize its characteristics. However, it generated negative emotions associated with the label's design and information. Improvements were identified in the visibility of the "Learn by Doing" seal and the size of the brand. It was also determined that taste, quality, and safety are the main drivers in the purchase decision, with greater weight than the brand, packaging design, and price.***

Keywords: Visual attention, metrics, emotions, factors.

I. Introduction

Cold cuts products in Honduras are currently dominated by companies that have industrialized their processes and diversified their offer, adapting to market preferences. Manufacturers are responsible for guaranteeing products that comply with attributes such as good color, flavor, aroma, nutritional value and accessible price [1]. Sausage consumption is a common practice among the Honduran population, which represents a valuable opportunity to analyze consumer preferences. Furthermore, as recent studies [2] indicate, 78% of the population consumes cold cuts, while only 37.5% of this group reported purchasing Zamorano products. These data show a market gap and raise the question of what factors are influencing the purchasing decision, and whether elements such as labeling could play a key role in this choice.

Currently, the meat unit manages a portfolio composed of cold cuts, classified into five technological categories: cured smoked, cured emulsified, cured restructured smoked, fermented and fresh. Through the previous analysis of the sales database for the years 2023 and 2024 in the Tegucigalpa market, the Zamorano brand has managed to position a variety of meat products, each with different levels of consumer acceptance.

Breakfast sausage stands out as the product with the highest level of sales, which is evidence of its strong presence and preference in the market. However, other products such as Spanish sausage and ham, among others, do not show a significant movement in sales, which raises the need to analyze the factors that could be affecting their positioning. In addition, through preliminary analysis, it has been identified that the visual perception of the labeling could be influencing the recognition and valuation of the product at the point of sale. Recent research has shown that clear and accurate labeling influences consumers' purchasing decisions by providing relevant information and improving the perception of product quality [3].

Food product labeling is a key element in consumer perception and decision making. Features such as colors, typography, and layout of information can significantly influence consumer attraction and purchase preference [4]. Also, attractive and well-structured labeling can strengthen the perception of product quality and differentiation in the marketplace [5]. mentions that the color black is often associated with feelings of sadness in the context of food packaging or labels. Emphasizing that the analysis of visual attention through eye tracking provides insight into how consumers process information and make decisions in purchase environments [6]. Emphasizing that the results of visual analysis are interpreted through the use of heat maps, which allow identifying the areas of an image that generate greater visual impact on users [7]. These maps use a color scale where warm tones, such as red, orange and yellow, represent the areas with the highest concentration of attention. In this way, it is possible to clearly visualize which elements capture the interest of the observer and with what intensity, facilitating the evaluation of the design.

This study is fundamental for the Zamorano brand because it allows us to analyze how labeling elements influence the perception of today's sausage consumers. The low acceptance of some products in supermarkets in Tegucigalpa has shown the need to identify which factors

affect the purchase decision. Through this research, it was possible to determine which are the most relevant visual factors for consumers and which ones go unnoticed. This allows us to propose strategies focused on optimizing label design, such as improving brand visibility, adjusting colors and eliminating areas that generate little interest. These findings are key to strengthening the positioning of Zamorano cold cuts and increasing their competitiveness in the local market.

Limitations: This evaluation focused exclusively on Zamorano brand sausages sold in supermarkets in Tegucigalpa, without considering other meat products or brands available on the market. The study focused specifically on labeling characteristics and factors that influence consumer purchasing decisions at the point of sale, ignoring external variables that could also have a significant impact, such as advertising, promotions, brand loyalty, or consumption habits outside the supermarket. Convenience sampling was chosen due to time and resource constraints, prioritizing the feasibility of fieldwork in the available context, although this limits the representativeness of the results. Additionally, the findings were not linked to sales data or changes in market share, due both to the limited availability of commercial information and to the study's focus on measuring consumers' visual attention and emotional responses.

The objectives of this study were: to evaluate which of the two labels captures more attention from Zamorano sausage consumers, in order to determine which is more visually effective; to evaluate the characteristics of the label that generated more attention, in order to identify those that should be improved to optimize the perception of the product; and to analyze the factors that influence the purchase decision, in order to identify those that drive greater demand for the product.

II. Methodology

A. *Exploratory Research*

This stage allows for a greater understanding of the problem being faced to later verify the information with descriptive research [8]. Information was collected based on secondary sources such as document review, theses and a historical data platform of Zamorano's external marketing unit. The research was carried out in La Colonia No. 1 and 10 and Más x Menos supermarkets, where data was collected from consumers who currently purchase Zamorano cold cuts. All respondents shared the same consumer profile with medium to high purchasing power.

To define the problem, an in-depth interview was conducted with the head of production at the meat plant, Dr. Gloria Destephen, to gather relevant information and define the administrative decision problem, followed by the market research problem. This interview is part of an exploratory qualitative investigation, and based on the information gathered, it was decided to carry out an evaluation of the visual behavior and preferences of current consumers of Zamorano cold cuts.

B. *Qualitative Research*

Through in-depth interviews with different experts, including the instructor of the Marketing module (Massiel Saravia) and the person in charge of the Zamorano Meat Plant module (Katherine Murillo), the supervisor of the Zamorano sales post (Claudia Amaya) and 20 consumers, valuable information was gathered on the aspects that influence the purchase decision and the characteristics of the labeling that affect the perception of the product. This made it possible to identify elements that could limit their acceptance in the market and to understand in great depth the relationship between product presentation and consumer response. Information subsequently used to design the survey instrument.

C. *Concluding Descriptive Research*

The present study adopted a simple cross-sectional design, which collects data at a single point in time, with the objective of describing the characteristics or perceptions of a population at a specific time [8]. The data were collected in a specific period; therefore, the variables were not manipulated, only the results were observed and analyzed. In the research framework, quantitative data obtained from eye tracking and surveys were analyzed.

For the study of the target population, current consumers of Zamorano cold cuts were selected, with medium to high purchasing power and aged over 20 years old, residing in Tegucigalpa, Honduras. Since this population exceeds 100,000 inhabitants and there is no exact sampling frame, it is considered an infinite population for the purpose of calculating the sample size by proportions and with an unknown population.

The pilot survey was conducted using a two-stage model, showing areas for improvement of the instrument and determining the clarity of the statements, the time taken to complete it and also obtaining the value of p and q for the calculation of the sample size and finally the calculation of Cronbach's Alpha, a statistical measure used to evaluate the reliability or internal consistency of a scale or set of items in a questionnaire. To obtain this coefficient, the Stata software was used, obtaining a Cronbach's Alpha value of 0.8391, which is considered acceptable.

To determine the sample size for each data collection instrument, the formula for infinite populations was used. In the case of the Eye Tracking analysis, a margin of error of 7% was established, while for the structured survey a margin of error of 5% was considered. The values obtained from this formula made it possible to define the final number of participants required for each instrument.

$$n = \frac{Z^2 * p * q}{e^2} \quad (1)$$

In the case of the Eye Tracking instrument, the estimated sample size was 143 people. However, it was decided to expand the sample to 150 participants as a precautionary measure against possible loss of data, equipment malfunctions or invalid records. The purpose of this decision was also to strengthen the reliability and robustness of the results obtained. On the other hand, for the application of the structured survey, the originally calculated sample size of 280 people was respected, as it was considered sufficient to guarantee the representativeness and precision required in the analysis.

The type of sampling applied in the sample selection for the eye tracking and survey instruments was a non-probabilistic convenience sampling. It was used because the participants were not selected randomly but were chosen among people who voluntarily approached the point assigned by the supermarkets. Each participant was asked if he or she was a consumer of Zamorano cold cuts, and only those who responded positively were included in the study; this method made it possible to capture real consumers in a natural shopping environment.

D. Eye tracking analysis

The experiment was designed within the iMotions software, loading the visual stimuli to be evaluated: the current label and a prototype. These were organized in a structured sequence, considering the exposure time of 6 seconds for each stimulus. Once the content was defined, the data collection environment was prepared in order to guarantee an accurate capture of the eye movements. Subsequently, the calibration of the eye tracking device was performed, this step consisted of a test where the participant followed a series of points on the screen with his/her gaze, allowing the system to accurately adjust the visual tracking. The calibration was validated before starting each test, during the execution of the study, the stimuli were presented while the system recorded in real time the eye fixations and emotions. Before starting the study, Areas of Interest (AOI) were manually delimited on each label. Five AOIs were defined on the actual label: net content, product description, “Learn by Doing” seal, brand and product name. In the prototype, seven AOIs were established, adding the refrigeration indication and the product image [9].

After the execution of the study, the iMotions software allowed the generation of heat maps as a visual analysis tool. This process is based on the data collected through eye tracking, recording the visual fixation points of each participant during exposure to the stimuli (current and prototype label). From this data, a visualization was created in the form of a heat map, where the colors reflect the density of fixations: the areas of higher attention with warm tones, while those of lower attention in cool tones. The software allows us to record metrics such as those shown in Table I, used to quantify the visual attention of consumers.

TABLE I
DESCRIPTION OF METRICS BASED ON FIXATION

Metrics	Meaning
Respondent count	Number of respondents observed at least once that AOI.
Respondent ratio (%)	Percentage of respondents who looked at AOI.
Revisit count	The average number of respondents looked back and refocused on the AOI after looking at it for the first time.
Time to first fixation in (ms)	Average time elapsed from the appearance of the AOI until the first fixation on the AOI is detected.
Dwell time (ms)	Time respondents looked at the AOI in relation to the time during which the AOI was present.
First fixation duration (ms)	Mean duration of respondents' first fixation with the AOI.

E. Emotional analysis

The facial recognition module of the iMotions software was used, which allows the identification and classification of facial expressions associated with basic emotions, as shown in Table II. This system processes in real time the microexpressions captured through a camera, providing objective data on the emotional reactions of the participants to the stimuli presented. The information obtained from this emotional analysis was fundamental to complement the perception study, given that emotions reflect implicit and automatic responses that are not always manifested verbally or consciously [10]. The collected data was processed using Microsoft Excel software for their initial organization. Subsequently, statistical analyses were performed with JASP program version 0.18.1.

TABLE II
DESCRIPTION OF FACIAL EXPRESSIONS

Metrics	Meaning
Anger	Intensity of anger detected in facial expression
Contempt	Intensity of contempt detected in facial expression
Disgust	Intensity of disgust detected in facial expression
Fear	Intensity of fear detected in facial expression
Joy	Intensity of happiness detected in facial expression
Sadness	Intensity of sadness detected in facial expression
Surprise	Intensity of surprise detected in facial expression

The survey instrument was used to determine which factors influence consumers' purchasing decisions and to identify key labeling characteristics. Results obtained from the exploratory research were used to formulate the questions of the questionnaire. The survey had 10 questions and measured two variables: purchase decision factors and label characteristics. Question 2 had an ordinal scale response option, questions 3 and 4 used a five-point Likert scale, using statements with both positive and negative structure, to more accurately assess consumer perceptions, and question 5 was open-ended to provide feedback to better align labeling with consumer needs. The purchase decision factors are price,

quality, brand, safety, taste and package design. The label characteristics are brand visibility, label design, color, label information and “Learn-by-Doing” seal. The survey was conducted in person using Google Forms platform. This format ensured that participants completed the survey, resolving their doubts instantly. The data was collected in real time, increasing its reliability.

The scales used were Likert scales: using values from 1 to 5, with a positive and negative structure to capture the individual perception of each factor. In the negative statements of the questionnaire, an inverted Likert scale was applied, where 5 corresponded to “Strongly disagree” and 1 to “Strongly agree”, to ensure that the analysis correctly showed the respondent's opinion. Jasp and Excel software were used for the descriptive analysis of these data. In addition, the ordinal scale, in which respondents assigned ranks from 1 to 6 to six predefined factors, with 1 being the most important and 6 the least important, using a quantitative and descriptive approach based on the reciprocal rank weighting method, using the Stata tool.

III. Results

The eye-tracking analysis in Fig. 1 showed that, in the current label, visual attention was mainly focused on the product name and brand, highlighted by the use of bright colors that favor its visibility. In contrast, elements such as the “Learning by Doing” seal and the net content generated little attention, as they did not stand out visually within the design. This suggests that consumers focus their visual attention on the distinctive features of the label.

Fig. 1 Heat map of the current label.

In Table III, it can be observed that the name of the product was the most prominent component: viewed by 95.33% of the participants, it was the first to catch the eye (810.72 ms), with a high average number of revisits (1,552), an initial fixation duration of 465.81 ms and a dwell time of 1,826.7 ms, indicating a strong level of attention.

The brand with the second place in visual relevance: it was viewed by 88.67% of the participants, with an initial fixation at 1,085.56 ms, average revisits of 1,248, a fixation duration of 443.25 ms and a dwell time of 1,562.6 ms. The product description was seen by 62% of the participants, with a detection time of 2,329.79 ms, revisits of 0.538, a fixation duration of 414.73 ms and a dwell time of 787.4 ms.

The “Learning by Doing” label showed low visibility, with 40.67 % of observations. It was detected very late (3,749.06 ms), with average revisits of 0.115, an initial fixation of 504.34 ms and a dwell time of 581.3 ms. Finally, the net content was the element with the lowest level of visual attention: only 18.67% noticed it, with a late detection (3,434.13 ms), almost null revisits (0.036), a fixation duration of 510.84 ms and a dwell time of 551.4 ms.

TABLE III
DESCRIPTION OF METRICS BASED ON THE CURRENT TAG SETTING

Metrics	Net contents	Product desc.	Stamp AH	Brand name	Product name
Respondent count	28.00	93.00	61.00	133.00	143.00
Respondent ratio (%)	18.67	62.00	40.67	88.67	95.33
Revisit count	0.036	0.538	0.115	1.248	1.552
Time to first fixation in ms	3,434.1	2,329.79	3,749.06	1,085.6	810.72
Dwell time (ms)	551.4	787.4	581.3	1,562.6	1,826.7
First fixation duration (ms)	510.84	414.73	504.34	443.25	465.81

The eye-tracking analysis of Fig. 2 for the prototype label showed that attention was mainly focused on the product image and name, which captured most of the participants' attention. The brand name received moderate attention, while other elements such as the “Learn by Doing” seal, refrigeration indications, net contents and product description generated less interest.

Fig. 2 Heat map of the prototype.

In Table IV, it can be observed that the name of the product was the most prominent component: visualized by 93.33 % of the participants, although its detection was relatively late (1,615.31 ms), it registered an initial fixation duration of 217.93 ms, a high average number of revisits (1,336) and a dwell time of 976.60 ms, reflecting a strong level of attraction. Finally, net content and product description were the least observed elements (31.33 % each). Net content showed the shortest dwell time (325.50 ms) and almost no revisits (0.064), while description, although detected faster (2,639.3 ms), had a slightly longer dwell time (543.60 ms) and 0.128 revisits.

TABLE IV
DESCRIPTION OF METRICS BASED ON PROTOTYPE FIXATION

Metrics	Net cont.	Product desc.	Stamp AH	Brand name	Product name	Refrig.	Product image
Respondent count	47.00	47.00	63.00	92.00	136.00	48.00	140.00
Respondent ratio (%)	31.33	31.33	42	61.33	90.67	32	93.33
Revisit count	0.064	0.128	0.254	0.228	1.132	0.25	1.336
Time to first fixation in ms	3,190.0	2,639.3	3,275.65	2,574.1	863.7	3,292.7	1,615.31
Dwell time (ms)	325.50	543.60	642.60	405.40	1,034.3	460.70	976.60
First fixation duration (ms)	293.59	397.84	411.42	250.05	243.36	342.21	217.93

According to Table V, paired samples t-test with a confidence level of 0.05, the attention metric was significantly higher for the prototype compared to the current label. The difference in means was -0.16, indicating that the current label got less attention. The $p < 0.01$ indicates that the difference is statistically significant, and the 95% confidence interval (-0.23 to -0.09) confirms that the prototype was able to capture more visual attention.

TABLE V
ATTENTION METRICS

				95% CI Proportion	
Metrics	Mean Difference	Standard Error	p	Lower	Upper
Atenttion	-0.16	0.04	<0.01	-0.23	-0.09

The t-test for paired samples in Table VI revealed significant differences in certain emotions between the two conditions evaluated to be the current label vrs. Prototype. The emotion joy showed a positive significant difference between the two conditions, with a t-value = 9.52 and a $p < .001$. This indicates that the score on this emotion was higher in the first condition (current label) compared to the second (prototype), with a mean difference of 1.49 (95% CI: 1.19 to 1.80).

In addition, contempt showed a positive significant difference between the two conditions, with a t-value = 10.44 and a $p < .001$. This indicates that the score on this emotion was higher in the first condition (current label) compared to the second (prototype), with a mean difference of 0.76 (95% CI: 0.62 to 0.91). On the other hand, the emotion disgust showed a negative significant difference between the two conditions, with a t-value = -2.41 and a $p = 0.02$. This indicates that the score on this emotion was lower in the first condition (current label) compared to the second (prototype), with a mean difference of -0.03 (95% CI: -0.06 to approx. to -0.00062). For the other emotions assessed (anger, fear, sadness, surprise), no significant differences were found between conditions, since their p-values were greater than 0.05.

TABLE VI
EMOTIONS: T-TEST FOR PAIRED SAMPLES.

				95% CI Proportion	
Emotion	Mean Difference	Standard Error	p	Lower	Upper
Fear	-9.56E-03	0.03	0.78	-0.08	0.06
Anger	-0.03	0.04	0.45	-0.12	0.05
Surprise	-0.04	0.04	0.35	-0.11	0.04
Sadness	-0.08	0.017	0.22	-0.22	0.05
Disgust	-0.03	0.01	0.02	-0.06	-6.20E-03
Contempt	0.76	0.07	<0.01	0.62	0.91
Joy	1.42	0.16	<0.01	1.19	1.8

In Fig. 3 the predominant emotion when visualizing the new label prototype is joy, with 54.57%, marking a significant difference with respect to the rest of the emotions. In second place is sadness with 17.62%, followed by fear with 5.04%, surprise with 3.05% and disgust with 0.93% were presented in smaller proportions.

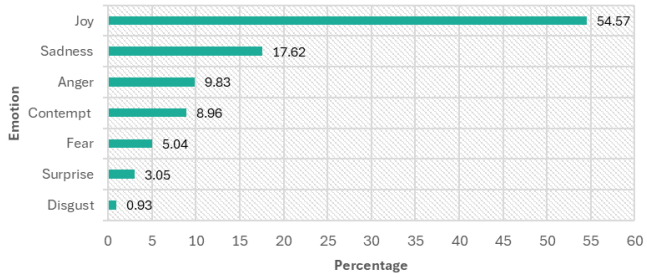

Fig. 3 Percentage representation of emotions of the prototype.

As illustrated in Fig. 4, which answers the question: Is the label color appropriate for the product? The results regarding the characteristic's perception show a shift in the distribution of negative and positive responses. 29.64% of respondents stated "Strongly Agree" and 29.64% "Agree," representing a total of 59.28% of responses in favor of the

color presented on the prototype label. In contrast, 18.21% indicated “Strongly Disagree” and the same percentage presented at the “Disagree” level, representing a total of 36.42% of negative perceptions. In addition, 4.29% were “Indifferent”. These data indicate that, although the majority perceive the color positively, there is also a considerable group of people with negative and indifferent opinions about it, this reflects differences in the acceptance of the color of the prototype label, which could indicate areas for improvement to achieve greater general acceptance.

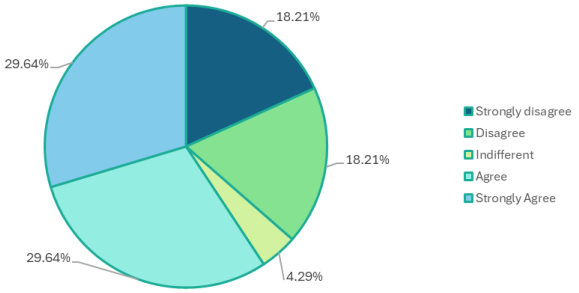

Fig. 4 Percentage representation of the color characteristic.

As shown in Fig. 5, the results for the statement: Is the label design unattractive? The perception of the feature reflected divided opinions among respondents. It is evident that 13.93% stated that they "Strongly Agree" and 25.71% "Agree", which represents a total of 39.64% who consider that the label design is not attractive. In contrast, 30.71% indicated that they "Disagree" and 25.00% "Strongly Disagree", for a total of 55.71% that the design is attractive. In addition, 4.64% declared themselves "Indifferent" to the design characteristic. This shows that, although there is a certain level of criticism, consumers find the design attractive.

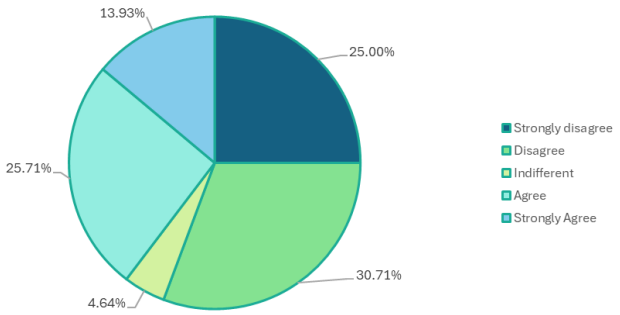

Fig. 5 Percentage representation of the label design characteristic.

As can be seen in Fig. 6, consumer perception is divided regarding the statement: Is the information on the label not sufficient? 20.36% of the respondents indicated that they “Totally agree” and 27.50% “Agree”, adding up to 47.86% who consider that the information is not sufficient. In contrast, 24.64% indicated “Disagree” and 26.07% “Strongly Disagree”, representing 50.71% of consumers who consider that there is sufficient information on the label. In addition, 1.43% were indifferent. This almost even distribution suggests that the current information content generates divided opinions, indicating the need for improvements that would more clearly and completely satisfy the expectations of all consumers.

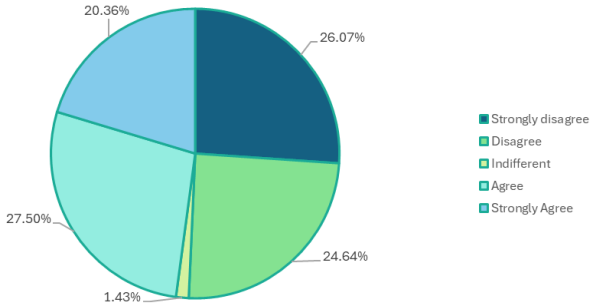

Fig. 6 Percentage representation of the characteristic sufficient information.

The results shown in Table VII indicate that the majority of consumers recommend improving the visibility of the AH seal with 24%, followed by 23% who indicate increasing the size of the brand in order to improve its visibility and reinforce its impact on consumer perception. In addition, 19% indicated a color change, suggesting that the visual design is not sufficiently eye-catching. In addition, 12% of respondents indicated that the processing and expiration date should be visible on the label not on the product packaging, while 8% suggested increasing the font size in general. Nutritional information and number of units were mentioned by 6% each, and a small group (3%) requested that the letter “Z” be larger.

TABLE VII
CONSUMER RECOMMENDATIONS ON THE PRODUCT LABEL

Recommendations	Frequency	Percentage
Larger Z	3	3%
Nutritional information	6	6%
Number of units	6	6%
Larger letter	8	8%
Date of manufacture and expiration	12	12%
Color change	20	19%
Larger brand	24	23%
Seal visibility AH	25	24%

According to the results in Fig. 7, when purchasing cold cuts, quality was positioned as the most important factor for consumers, with 26.32%, followed by flavor with 19.78% and safety with 16.78% as the third most important factor, based on the responses of those surveyed. This indicates that these three factors are the most influential for consumers in their purchasing decision. The price, at 13.26%, can also be

considered relevant. In contrast, brand obtained 12.14%, showing less importance, while packaging design, with 11.72%, was the factor with the least weight in the purchase decision. Based on the data shown, quality is identified as the most important factor for consumers when choosing cold cuts, standing out for their high value compared to the other attributes evaluated.

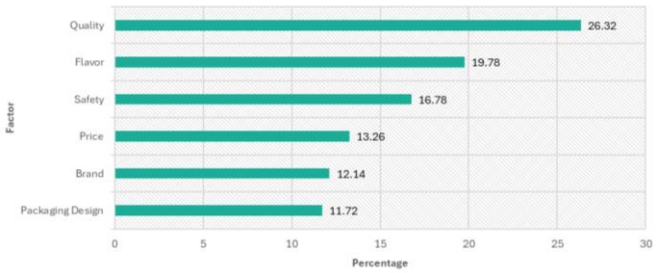

Fig. 7 Percentage of influence by factor in the purchase decision.

IV. Discussion

It was observed that, although the prototype has a greater number of fixation points, participants were able to visualize all of them in an average time of six seconds. In contrast, in the current design, despite having fewer fixation points, not all of them were perceived by consumers, suggesting a lower visual effectiveness. Indicating that heat maps allow the visual and precise identification of the areas that generate greater attraction in consumers, using a chromatic scale where warm tones reveal the areas with greater eye fixation [7]. For the attention metric the prototype was significantly higher compared to the current label. Furthermore, analysis of the visual metrics shows that the prototype outperforms the current label, as the revisit count, the current label averaged 0.7, while the prototype only 0.48, indicating a better initial understanding of the message. This is supported by the authors' thinking, who state that fewer visual revisits to an area of interest indicate that the viewer understands the information presented faster, reflecting clearer and more efficient visual communication [11].

The emotional analysis shows that the current label generates a more favorable emotional reaction in consumers, compared to the prototype, in which negative emotions predominate. This finding coincides with other studies, which argue that the incorporation of new labels, even without modifying the product, can significantly alter consumer perception, causing rejection or discomfort due to the loss of familiarity or a negative interpretation of the message [12].

Within the emotions generated by the label prototype, it was observed that the predominant emotion was joy, indicating that the prototype does generate a positive perception in most consumers, which is consistent with recent research, which indicates that clear and precise labeling directly influences consumer perception [3]. In addition, in second place, there is sadness which can be attributed to the black color that predominates in the background of the label. Indicating that the color black is often associated with feelings of sadness in the context of food packaging or labels [13].

The analysis of consumers' perception of the characteristics evaluated in the label prototype shows that the "Learning by Doing" seal and the visibility of the brand stand out for obtaining the highest degree of agreement. On the other hand, the characteristics that suggest opportunities for improvement as they do not transmit a clear perception were the color, design and information seen on the label. Authors emphasize that color plays a strategic role in attracting consumers, pointing out that yellow evokes positive sensations and provokes appetite. They also emphasize that the combination of yellow with black is commonly used to highlight elements, generate attractive designs and make the product stand out at the point of sale [14]. Furthermore, the label of a product should contain clear, sufficient and truthful information for the consumer to make informed decisions; insufficient information can generate distrust and affect the choice of the product [15].

Within the feedback obtained from consumers, it was recommended to improve the visibility of the "Learning by Doing" seal, since it adds value to the product and reinforces its institutional identity, as indicated in studies, that "Learning by Doing" seal, not only transmits technical knowledge, but also teaches how to apply it with meaning, integrating values and attitudes that enrich its meaning towards consumers [16]. In addition to increasing the size of the brand, due to the fact that the brand allows institutions to project their ability to meet market expectations and it is essential that the public perceives a coherent and positive image through its visual elements, since the brand acts as a connector between the institution and individuals who identify with its attributes [17].

It was determined that the most important factor was quality, and when comparing the results with the study previously carried out on Zamorano cold cuts, it was confirmed that quality remains the most important factor in the purchase decision, with 56.7% in their study. Taste and safety also stand out as relevant factors in both studies. On the other hand, packaging design is positioned as the least influential factor in both cases [2]. This coincidence reinforces the consistency in consumer preferences over time.

V. Conclusions

The prototype label stood out for its greater breadth of visual capture, surpassing the current label in the areas of product image and product name. In addition, it allowed consumers to see and highlight each of its features.

The features to be improved in the prototype are color, design and label information. The need to improve the visibility of the "Learning by Doing" seal and increase the size of the brand was also identified.

Taste, quality and safety are the main drivers of the purchase decision for Zamorano cold cuts. These factors significantly drive demand over others such as brand, packaging design and price.

VI. Recommendations

It is recommended that Zamorano continue to refine the label prototype, relocating the “Learning by Doing” seal to the lower right on the black background and increasing the size of the mark to improve its visibility.

The prototype design should reduce negative emotions such as distaste while enhancing those that strengthen the perception of the product. It is recommended to use a combination of black with warm tones to generate a pleasant visual experience and strengthen the emotional connection with the consumer.

Conduct tastings in supermarkets or points of sale where the brand is distributed, to boost sales. These are more effective when carried out by Zamorano students, since they generate trust and strengthen the emotional bond between the consumer and the brand.

References

[1] R. M. Cerrato and T. E. Quiñónez, "Prefactibilidad de ampliar planta de embutidos de compañía avícola de Centro América, S.A de C.V," Tesis de Posgrado, Unitec, 2018. [Online]. Available: https://repositorioslatinoamericanos.uchile.cl/handle/2250/9219017?show=full

[2] K. I. Carias R., "Estudio de mercado para la línea de embutidos Zamorano en Tegucigalpa," Proyecto Especial de Graduación, Escuela Agrícola Panamericana, Zamorano, Honduras, 2018. [Online]. Available: https://bdigital.zamorano.edu/items/529d547b-4c02-4287-a41e-d9af2e2b8d5e

[3] J. Restrepo, M. Valencia, and G. Muñetón, "Etiquetado de alimentos y salud," Análisis, vol. 56, no. 104, pp. 189–216, 2024, doi: 10.15332/21459169.9793.

[4] R. Runcan, D. Rad, P. Runcan, and C. Măduța, "A Network Analysis Approach toward Adaptive Overt Narcissism Network," Behavioral Sciences, vol. 13, no. 6, p. 468, 2023, doi: 10.3390/bs13060468.

[5] J. F. Guzmán Pacheco, J. P. Henao Cruz, and F. E. López Florez, "Impacto del Diseño de Empaques y Etiquetas en Productos con Sellos de Advertencia según la Ley de Etiquetado en Colombia," Revista Temario Científico, vol. 5, no. 1, 2024, doi: 10.47212/rtcAlinin.3.125.4.

[6] S. Suurmets, "Contextual effects in consumer research," Dissertation, 2019. [Online]. Available: https://research-api.cbs.dk/ws/portalfiles/portal/58811690/seidi_suurmets_phd_series_27_2019.pdf

[7] E. C. Mancilla, "Pruebas de seguimiento ocular para el análisis de la imagen.," DAYA, no. 13, pp. 85–101, 2022, doi: 10.33324/daya.vi13.557.

[8] A. A. Vásquez Ramírez, L. M. Guanuchi Orellana, R. Cahuana Tapia, R. Vera Teves, and J. Holgado Tisoc, Métodos de investigación científica: Instituto Universitario de Innovación Ciencia y Tecnología Inudi Perú, 2023.

[9] iMotions, iMotions Powering Human Insights Biometric Research. [Online]. Available: https://imotions.com/ (accessed: Jul. 26 2025).

[10] iMotions, Facial Expression Analysis Emotion Detection Software. [Online]. Available: https://imotions.com/products/imotions-lab/modules/fea-facial-expression-analysis/ (accessed: Jul. 26 2025).

[11] K. Holmqvist, M. Nystrom, R. Andersson, R. Dewhurst, H. Jarodzka, and J. van de Weijer, Eye Tracking: A comprehensive guide to methods and measures, 1st ed.: Oxford University Press, 2011. Accessed: Jul. 26 2025. [Online]. Available: https://global.oup.com/academic/product/eye-tracking-9780199697083?cc=hn&lang=en&

[12] A. W. K. Yeung, "Neural correlates of food labels on brand, nature, and nutrition: An fMRI meta-analysis," Front. Nutr., vol. 9, 2022, doi: 10.3389/fnut.2022.1056692.

[13] H. Henderson, "Influencia del color y música sobre envases de Tetrapak: Preferencias y emociones mediante consumidores," Tesis de licenciatura, Universidad Peruana Unión, Lima, 2023. [Online]. Available: https://repositorio.upeu.edu.pe/items/abade52e-498b-4423-b56b-24d8fbc0e5a7

[14] M. Cuervo, "El poder del color, la influencia de los colores en el consumidor," Curso de Adaptación Grado en ADE, Universidad de León, España, 2012. Accessed: Jul. 26 2025. [Online]. Available: https://buleria.unileon.es/handle/10612/1904

[15] A. C. Codex, Codex General Standard for the Labelling of Food Additives When Sold as Such. [Online]. Available: https://www.fao.org/4/y2770e/y2770e03.htm (accessed: Jul. 26 2025).

[16] J. C. Strem, "Propuesta para el Aprender Haciendo del Módulo de Recursos Naturales del Colegio Técnico Profesional de Pital, Costa Rica.," Proyecto especial de graduación, Escuela Agrícola Panamericana, Zamorano, Honduras, 2003. [Online]. Available: https://bdigital.zamorano.edu/server/api/core/bitstreams/1d734b8b-4d2b-4e72-852e-55ce7d370dbb/content

[17] E. D. Andrade Sanchez, N. A. Gallardo Perez, and V. H. Cantos Luces, "The logo and its importance in improving brand perception in higher education institutions," uct, vol. 26, no. 115, pp. 16–24, 2022, doi: 10.47460/uct.v26i115.612.