

Brand Recognition of Fish Sauce Origin of Hai Phong Through the Case Study of the Retail Market in Hanoi City

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Abstract:

Brand identity is a decisive step in the process of brand management. There are many factors to identify a product's Brand, in which the core element holds the center position because it makes the new brand management process focus, reducing costs. To identify the factors that make up the Brand of fish sauce originating from Hai Phong, we conducted a quantitative study to probe consumer attitudes in the inner city of Hanoi. Analytical data were collected using a questionnaire built on a 10-point Likert scale-study sample size $n=30$. Principal component analysis (PCA) is applied to reduce a large set of variables into a small set that still contains most of the information in the large set. The result is $PC_1 = 77.7\%$, which means that PC_1 explains 77.7% of the variance of the observations. Research shows that all six factors (classified into three distinct clusters) include product colour, consumer satisfaction, taste, product salinity, product design. Furthermore, the product's price is a sign of identifying the fish sauce brand originating from Hai Phong.

Keywords: Hai Phong; Brand recognition; Fish sauce, Brand.

1. Question

The ever-changing market conditions have led to an increasingly important role of brand management as an integral part of holistic marketing, and it is more important than ever. The reality of the retail market today shows that businesses are trying to manage their brands flexibly to satisfy customers' wishes. To a competitive brand, businesses need to pay attention to their customers constantly. Meanwhile, today's retail environment forces consumers to face a flood of different brands and products.

According to the researchers, consumers are influenced by their attitudes, values, experiences, and living environment. In our opinion, brands are factors that influence consumer purchasing preferences and therefore investigating the impact of brands on consumer behaviour is essential. In this article, we present the results of a survey to investigate and provide evidence on the attributes of fish sauce products originating from Hai Phong affecting the level of consumer satisfaction and consumer satisfaction brand identity. According to Richardson, Jain and Dick (1996), the older customers are, the more experienced they are buying than younger people. Older people consider diverse options through the experiences they have developed. At the same time, younger people with less experience rely on brands and prices of goods.

For fish sauce products, consumer satisfaction is associated with the level of brand recognition. Customer satisfaction comes from the attributes associated with the product and their factors such as gender, age, living environment, occupation. The goal of the article is to emphasize that the brand identity factors of fish sauce originating from Hai Phong have an impact on the satisfaction of consumers through their attitude and level of product evaluation.

2. Research Theory

David Ogilvy, who is considered the father of advertising, said: "Brand is something that remains with us when our factory burns down." According to (Loken, Ahluwalia, Houston, 2010) research, branding is essential to businesses at two different levels. First, the brand plays a central role in consumer loyalty, an asset that ensures future sales and profits. Brands reflect a business's product stability, help protect against the competition, and enable investment and planning. Trademarks are business assets, legally protected and protected from duplication. They are valuable, scarce, irreplaceable and provide a sustainable competitive advantage.

A brand is built over time by the impressions that consumers have of a business. Its products or services are confirmed (or destroyed) by experiences over time. According to research by (Transparency 2005), people use brands to categorize their product choices. Research by (Babčanová 2010) shows that based on existing definitions of a brand, a brand is: a human-perceiving sign of a business and its products, through which customers perceive it. Able to distinguish an organization and its products from other organizations.

Research by Winkielman et al. (Winkielman et al., 2000) suggests that: Brand ultimately acts as a signal. It allows consumers to quickly recognize a product they are familiar with or a product they like. It acts as a hint from memory, allowing the consumer to get relevant information from memory. This information can be about their experience with the brand, brand awareness.

Also, according to Winkielman et al. (Winkielman et al., 2000), information stored as brands is essential in guiding consumer decisions. According to (Holt 2015), branding has become one of the most critical aspects of business strategy. According to (Hislop 2001), the brand is a central factor in creating customer value, an image, and an essential tool to create and maintain a competitive advantage. According to (Kotler et al., 2013), branding is the process of creating a relationship or connection between a company's products and customers' emotional perceptions to create distinction in the competitive arena competition and build customer loyalty. Also, according to (Kotler et al., 2013), brand management is an integral part of holistic marketing.

Aggarwal's (2004) study examined the differences in how consumers perceive and value brands by investigating brand equity, brand personality, and brand extension. According to this author, researchers have recently noted that consumers differ in how they perceive brands and how they relate to brands..

According to (Aggarwal 2004), people sometimes form relationships with brands similar to how they form relationships with each other in a social context. Branding has become one of the most important aspects of a business strategy. According to (Holt 2015), the brand is a central factor in creating customer value, image and essential to creating and maintaining a competitive advantage. Activities in brand management enable building customer loyalty through associations and a positive image or strong brand awareness. The brand is the property of the business. Brand recognition is the goal that businesses aim for brand identity focuses on the general perception and feeling of consumers about a brand and influences consumer behaviour.

According to (Zhang 2015), for marketers, whatever the marketing strategy of the business, the primary purpose of marketing activities is towards the influence of the brand on the perception and attitude of consumers use for the product, establish the brand image in the consumer's mind and stimulate the consumer's actual purchase behaviour towards the brand, thereby increasing sales, maximizing market share and developing the brand. Commodity development brand awareness, which is one of the fundamental aspects of brand equity, is often considered a prerequisite in a consumer's purchasing decision, as it represents the critical factor in bringing the brand to life into the client's consideration. Consumers' brand awareness influences their decisions. Risk perception and customer confidence influence purchasing decisions or not, and positive attachment keeps customers familiar with the brand and its characteristics. According to (Aaker 1991, Moiescu, 2009), brand awareness factors can be described into at least two aspects – brand recall (not buying goods or buying for others, and brand support). (brand identity) - each aspect has more or less influence on the purchase decision and risk assessment of customers' actions based on the above statements. In our opinion, the brand identity elements make customers their commitment to the business and its brand.

We propose the following research hypotheses after all of the theoretical analysis results:

H1. The colour of the product is a sign to identify the fish sauce brand originating from Hai Phong

H2. The freshness of consumers is a sign of identifying the fish sauce brand originating from Hai Phong

H3. The taste of the product is a sign of identifying the fish sauce brand originating from Hai Phong

H4. The salinity of the product is a sign of identifying the fish sauce brand originating from Hai Phong

H5. The design of the product is a sign of identifying the fish sauce brand originating from Hai Phong

H6. The price of the product is a sign of identifying the fish sauce brand originating from Hai Phong

3. Research Methods

3.1. Research Design

The article uses secondary data collected from publicly available statistical and newspaper sources on the

internet. They are using primary data by questionnaire. The questionnaire is designed with six questions using a 10-point Likert scale (rated from low to high. 1 point is the lowest, 10 points is the highest). Sample size n=30. Purposeful sampling method. Survey period (August 2019). Survey location (some Vinmart supermarkets in Cau Giay and Tay Ho districts - Hanoi city). Survey subjects are housewives. The survey aims to collect data to evaluate five brands of fish sauce originating from Hai Phong, including:

1. Cat Hai fish sauce (available in foreign markets such as the United States, Eastern Europe, China, Laos, Philippines)
2. Son Hai fish sauce (a famous brand of Vietnam and has been awarded many medals and certificates of merit both domestically and internationally)
3. Quang Hai fish sauce (high quality, delicious taste, rich and familiar to Hanoi consumers)
4. Quy Hai fish sauce (a popular product in Hanoi's consumer meals)
5. Cat Ba fish sauce (a famous brand that many Hanoi consumers know about).

The survey's primary purpose is to find out how consumers perceive the brand identity of Hai Phong in the inner city of Hanoi. From there, consider the role of brand identity factors in the customer's decision-making process to serve as a basis for further research on (brand awareness, brand identity, preferences, of customers and buying motivation of a particular brand of fish sauce).

From all the research objectives, the questions are designed for respondents to score (from 1 to 10) for six factors for each brand of lucky water as mentioned:

- (1). The consistency of the product's colour is a sign of identifying the fish sauce brand originating from Hai Phong
- (2). Level of refreshment when using fish sauce originating from Hai Phong
- (3). H3. Consistency of the taste of fish sauce originating from Hai Phong
- (4). The appropriate level of salinity of fish sauce originating from Hai Phong
- (5). The suitability of the product design is a sign of identifying the fish sauce brand originating from Hai Phong
- (6). The match between price and product quality.

3.2. Analytical Techniques

In addition, to popular qualitative analysis techniques such as mean, variance, standard deviation. The writer uses the quantitative analysis technique Principal Components Analysis (PCA). It is a technique known as a dimensionality reduction tool that can reduce a large set of variables into a small set that still contains most of the information in the large set. PCA uses a method of reducing the number of variables in their data by extracting an essential variable from a large group. Specifically, a statistical procedure uses an orthogonal transformation to convert a set of observations of correlated variables (each taking different numerical values) into a set of values. The values of non-linearly correlated variables are called principal components. Specifically, consider a space (data) of "k" variables; these "k" variables are expressed through "j" principal components such that ($j < k$). Consider the first principal component of the form:

$$PC_1 = a_1 * X_1 + a_2 * X_2 + a_3 * X_3 + a_4 * X_4 + \dots + a_k * X_k \quad (1)$$

The first principal component contains most information from the initial "k" variables (formed as a linear combination of the original variables). Moreover, now we continue to consider the second principal component linearly represented from k the initial variable; however, the 2nd principal component must not be orthogonal to the initial principal component or (the 2nd principal component has no linear correlation with the first principal component). Theoretically, we can construct many principal components from many initial variables. However, we need to find the spatial axis such that the fewest components can represent most of the information from the original variables.

PCI analysis steps include:

- Step 1: From the data set, normalize the variables so that a single scale represents all variables.
- Step 2: Construct the covariance matrix of those variables.
- Step 3: Calculate Eigenvectors and Eigenvalues covariance matrix.
- Step 4: rearrange the matrix by eigenvalues, highest to lowest.
- Step 5: Keeping the n-components in the top row (PC1) explains the variability of 75%-80% of the data set.
- Step 6: Create a feature vector by taking the eigenvectors kept in step 5 and create a matrix with these eigenvectors in the columns.
- Step 7: Get the displacement of Eigenvector. The obtained values are the main point.

The dataset obtained from the survey is stored as a matrix of 30 observations \times six matrices, where the columns are different features and each row represents a distinct brand of fish sauce. Each sample row can be visualized as a 6-dimensional vector:

$$X^T = \begin{pmatrix} x1 \\ x2 \\ x3 \\ x4 \\ x5 \\ x6 \end{pmatrix} = \begin{pmatrix} \text{colors} \\ \text{deliciousness} \\ \text{savour} \\ \text{salinity} \\ \text{models} \\ \text{conformity of pricee} \end{pmatrix} \quad (2)$$

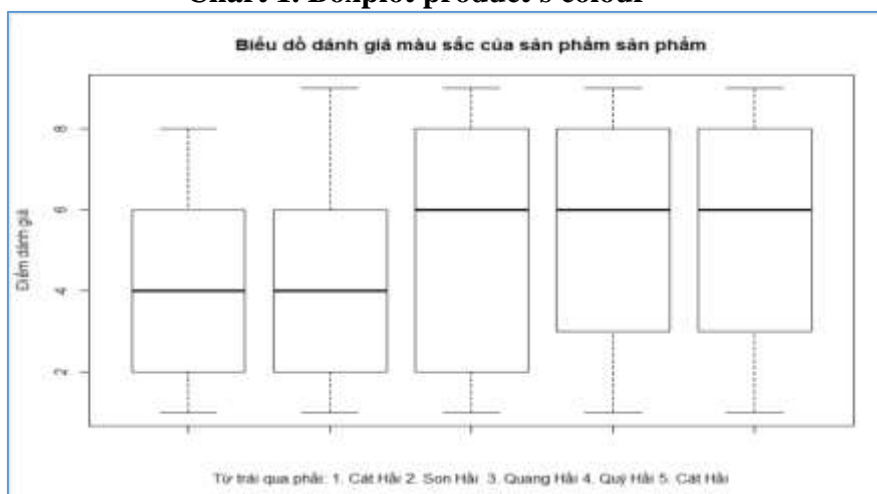
In this article, the "R" language (R languages) is used for CPA analysis to reduce a large set of variables into a small set that still contains most of the information in the large set to identify the origin of the fish sauce brand from Hai Phong.

4. Results and Discussion

4.1. Analysis results

Chart 1 shows that the colours of Son Hai, Quang Hai, and Cat Hai fish sauce are appreciated by consumers in Hanoi's inner city more than other products of the surveyed products. Median of these 3 products = 6, 25th percentile (q25) = 2.5, 75th percentile (q75) = 8.

Chart 1. Boxplot product's colour

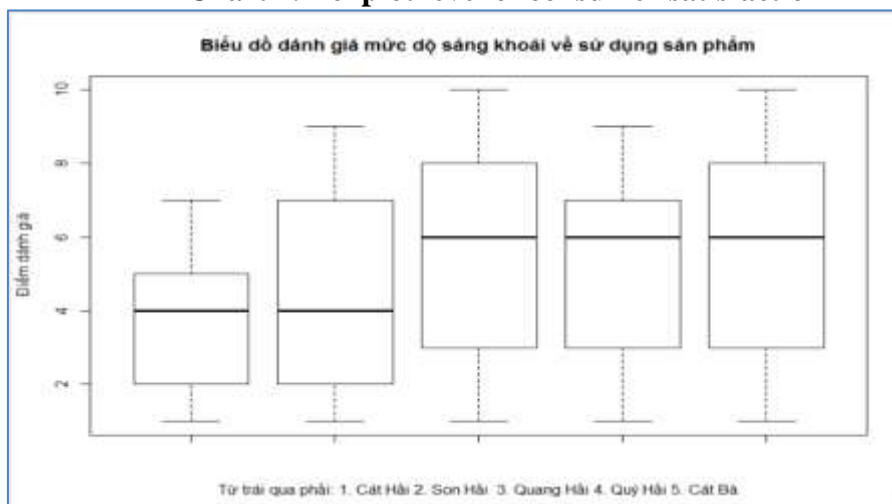


(Source: Survey results)

Cat Hai and Son Hai fish sauce products are rated lower. Chart 1 shows the median of these two products =4, $q_{12}=2$, $q_{75}=6$. Summarizing the data in Figure 1 shows a qualitative difference between Cat Hai, Son Hai and Quang Hai, Quy Hai and Cat Ba fish sauces.

Regarding the consumer's satisfaction with the product, Chart 2 shows that Quang Hai, Quy Hai, and Cat Ba fish sauce has a median= 6.2. q_{25} of these three products = 2.5, differing only in q_{75} (Qui Hai fish sauce has $q_{75}=6.6$).

Chart 2. Boxplot level of consumer satisfaction

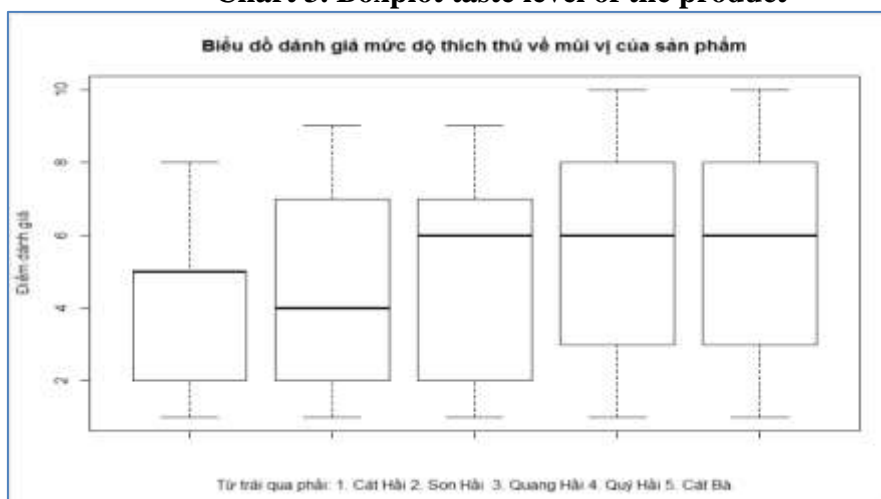


Source: Survey results

Chart 2 shows that consumers' satisfaction with Cat Hai and Son Hai fish sauce products has a median = 4, $q_{25} = 2$, q_{75} of these two products. Son Hai fish sauce has $q_{75} = 6.5$, and q_{75} of Cat Hai fish sauce = 4.5. Summarizing data from Figure 2 shows that the freshness of Quang Hai, Quy Hai and Cat Ba fish sauce is higher than that of Cat Hai and Son Hai fish sauce. Media of 6 products shows a difference in the refreshment of consumers in the inner city of Hanoi between two product groups: Quang Hai, Quy Hai, Cat Ba fish sauce and Cat Hai and Son Hai groups.

Regarding the product's taste, chart 3 shows that consumers in Hanoi city rate three fish sauce products, Quang Hai, Quy Hai and Cat Ba higher than Cat Hai and Son Hai. All three products have a median = 6. The lucky countries Quy Hai and Cat Ba have similar q_{25} and q_{75} ($q_{25}=2.5$, $q_{75}=8$).

Chart 3. Boxplot taste level of the product



Source: Survey results

Chart 3 shows that there is a clear distinction in terms of the taste of the product. Quang Hai, Quy Hai and Cat Ba fish sauce had a higher median than the other group (median=6.1) and $q_{75}=8$. Meanwhile, lucky water Son Hai has a median = 4, and Cat Hai has a media = 4.5. The taste of both products has $q_{25} = 2$, but q_{75} of Son Hai fish sauce = 6.6, q_{75} of Cat Hai fish sauce is approximately equal to its media.

Chart 4. Boxplot about product salinity compatibility

Source: Survey results

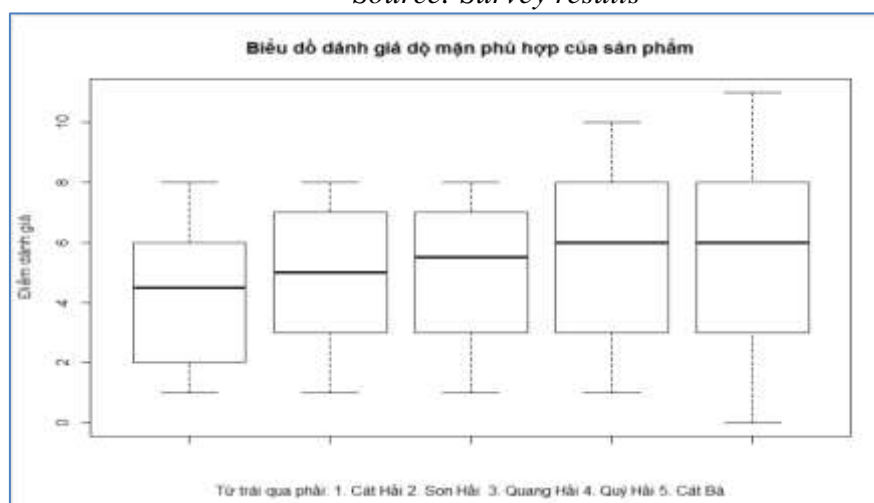
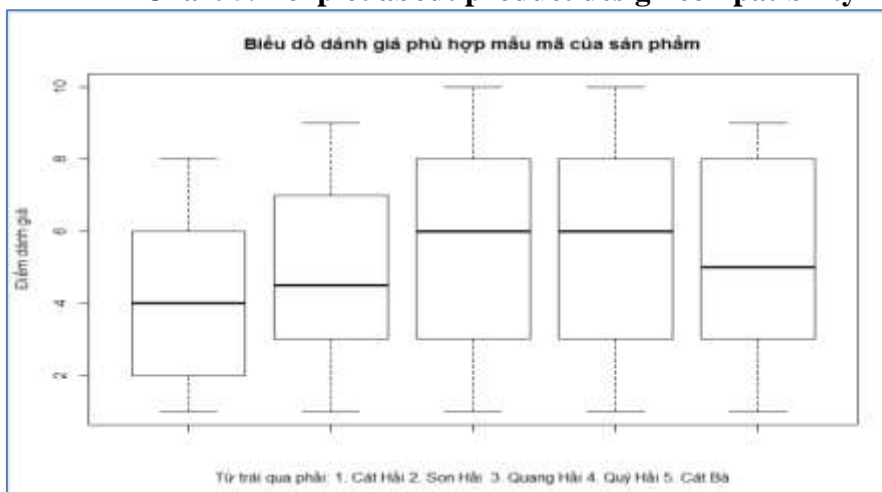


Chart 4 shows that the perceived salinity of the six surveyed fish sauce products is relatively uniform. The perception of salinity of Quy Hai and Cat Ba fish sauce has the highest media = 6. Media of Quang Hai fish sauce = 4.8, Son Hai = 4.5, Cat Hai = 4.3. Meanwhile, q_{25} and q_{75} of Quy Hai and Cat Ba fish sauce are similar ($q_{25}=2.5$, $q_{75}=8$). The suitable salinity of Son Hai and Quang Hai fish sauce has similar q_{25} and q_{75} ($q_{25}=2.5$, $q_{75}=6.5$). Cat Hai lucky water is rated by consumers as the lowest suitable salinity (median = 4.3, $q_{25} = 2$, $q_{75} = 6$).

Regarding product design compatibility, chart 5 shows that Quang Hai and Quy Hai product designs are the most appreciated by consumers in Hanoi (median = 6). These two products have similar q_{25} and q_{75} ($q_{25} = 2.5$, $q_{75}=8$). Cat Ba fish sauce is also highly appreciated by consumers in the inner city of Hanoi (median = 4.5), $q_2 =$

similar to Quang Hai and Quy Hai fish sauce ($q_{25}=2.5$, $q_{75}=8$). The remaining two products are rated low by consumers in terms of product design (Cat Hai lucky water has median=4, $q_{25}=2$, $q_{75}=6$. Son Hai fish sauce has median=4.3, $q_{25}=2.5$, $q_{75}=6.5$).

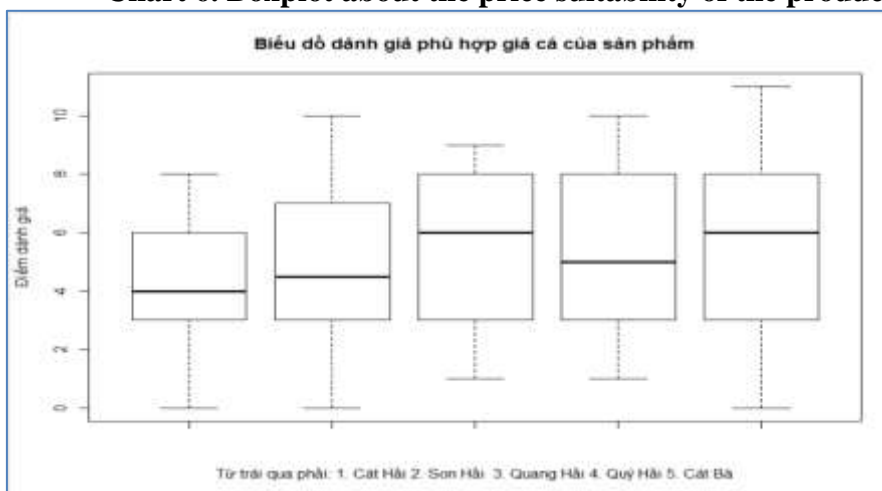
Chart 5. Boxplot about product design compatibility



(Source: Survey results)

Regarding the concordance of product prices with the quality of goods, chart 6 shows that consumers in Hanoi's inner-city give the highest rating for Quang Hai and Cat Ba fish sauce (median = 6, $q_{25} = 2.5$), $q_{75}=8$). Cat Ba fish sauce is also considered affordable by consumers (median=4.5, $q_{25}=2.5$, $q_{75}=8$). The price of Son Hai fish sauce is underestimated by consumers (median=4.2, $q_{25}=2.5$, $q_{75}=6.5$). The price of Cat Hai fish sauce is judged to be the most inappropriate compared to other products (median=4, $q_{25}=2$, $q_{75}=6$).

Chart 6. Boxplot about the price suitability of the product



Source: Survey results - Quantitative analysis results

We use research data on brand identity factors of fish sauce originating from Phu Quoc and Nha Trang and survey results on lucky water originating from Hai Phong to analyze CPA to assess the distribution of fish sauce clusters of fish sauce brands from these three localities. Chart 1 shows the Proportion of Variance percentage of $PC_1=77.7\%$, $PC_2=9.5\%$, $PC_3=5.1\%$, $PC_4=4.4\%$, $PC_5=2.3\%$, $PC_6=0.08\%$.

Chart 1. PCA analysis results

Importance of components:

	PC_1	PC_2	PC_3	PC_4	PC_5	PC_6
Standard deviation	2.159	0.75344	0.5553	0.51940	0.37499	0.22648
Proportion of Variance	0.777	0.09461	0.0514	0.04496	0.02344	0.00855
Cumulative Proportion	0.777	0.87165	0.9231	0.96801	0.99145	1.00000

(Source: Survey results)

The results shown in chart 7 show that the clustering between fish sauce brands originating from the three localities as mentioned is apparent.

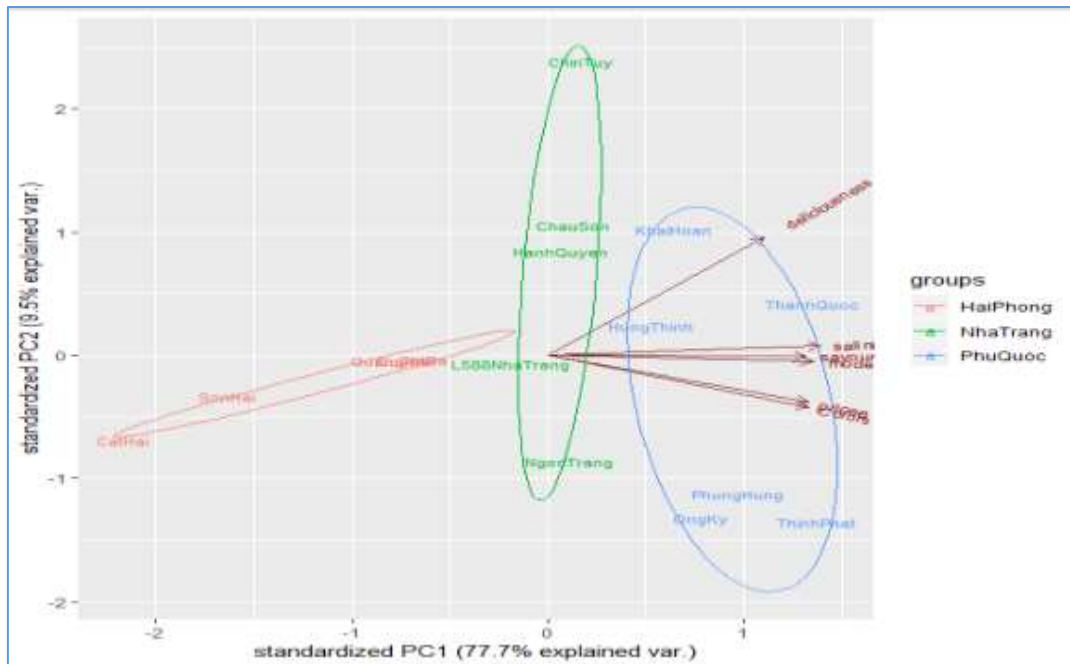


Chart 7. Analysis results for PC1 and PC2
(Source: Survey results)

Products originating from Phu Quoc have the highest brand recognition rate (all cashew brands are distributed on the right in the position of chart 7). Fish sauce products originating from Nha Trang have a lower brand recognition rate than products originating from Phu Quoc but higher than products originating from Hai Phong (Origin fish sauce brands). Nha Trang is concentrated in the position holding Chart 7). Lucky water products originating from Hai Phong have the lowest brand recognition rate (the lucky water brands from Hai Phong are concentrated on the left side of chart 7).

The diagram & also shows that the elements of fish sauce brand identity are divided into three distinct groups. The first group includes the product's price and colour, and the second group includes the salinity, taste, and design of the goods. The third group has only one factor, the consumer's satisfaction.

4.2. Discussion

There is statistical evidence on the elements of the brand identity of fish sauce originating from Hai Phong, including the product's colour, level of consumer pleasure, taste, salinity, design, and price. These six factors are grouped into three distinct clusters. However, no element stands out as the most characteristic element of that product. It means that many factors identify a product, making it difficult to invest in focusing on one element of brand identity.

The results of qualitative analysis and CPA show that our hypotheses are confirmed meaning:

The colour of the product is a sign to identify the fish sauce brand originating from Hai Phong.

The freshness of consumers is a sign of identifying the fish sauce brand originating from Hai Phong.

The taste of the product is a sign to identify the fish sauce brand originating from Hai Phong.

The salinity of the product is a sign of identifying the fish sauce brand originating from Hai Phong.

The product's design is a sign to identify the fish sauce brand originating from Hai Phong.

The price of the product is a sign of identifying the fish sauce brand originating from Hai Phong.

This study cannot confirm whether the mentioned brand identity factors play a central role in consumer loyalty with small sample size and narrow research scope. These factors are confirmed as assets to ensure future revenue and profit. Therefore, it is necessary to have a more comprehensive study on the fish sauce brand originating from Hai Phong to determine the core element in the brand identity to make the necessary investments in this factor. The core is to build a brand that truly reflects the stability of their product, helps protect against the competition, and allows for investment and planning.

The research also did not have enough evidence to prove whether the mentioned factors are the property of the Hai Phong fish sauce industry or not. The CPA method has not shown the overlapping factors and distinguishes between the attributes of fish sauce products. The need to study this problem by clustering algorithm will be more apparent. In summary, determining the core element in the Hai Phong fish sauce brand identity is necessary as a basis and a basis for legal protection, avoiding duplication between products

originating from other localities. Clustering algorithm helps identify the core attributes of valuable, scarce, and irreplaceable products and provides a sustainable competitive advantage for businesses.

5. Conclusion

The fish sauce production facilities in Hai Phong need to be deeply aware that the brand is a factor that impacts the purchasing decision process of consumers. Brands provide information about products that influence consumers' minds during the purchase process. The brand is the pride of the business, of the local origin of goods; recognizing the core element in the identity of the fish sauce brand of Hai Phong origin is a decisive step in brand management since this is the basis for determining the necessary actions to meet customer needs, as (Sende 2014) talked about it.

Like other countries, Vietnam's fish sauce market is currently in a super-saturated environment of products. The emergence, existence, and disappearance of a brand rapidly prove that the disappearance of brand loyalty lies in supersaturation. Therefore, the investment in branding - that is, strengthening the relationship between customer loyalty to the product and the business's loyalty to customers is equally meaningful. This fact poses a requirement to identify the values of brands that meet the values and desires of consumers.

More than ever, Hai Phong must have the policy to build a locally-originated fish sauce brand to avoid general, inappropriate regulations, creating loopholes for the brand to be easily compromised. The policy must promote the unique value, scarcity, and irreplaceability of Hai Phong fish sauce products in Vietnamese family meals; with that, the new brand of Hai Phong fish sauce is the pride, the property of fish sauce production facilities in particular, of Hai Phong's hometown in general.

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