

**ECO DESIGN AND THE BOTTLED MINERAL WATER CONSUMPTION:
A Study on the Acceptance of Crystal Brand**

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ABSTRACT

In the context of unsustainable practices and commercial technologies, the role of business has been to introduce new production processes and new products that can act positively in reducing the negative impact generated by the economy. A company that invests in sustainable products through EcoDesign is Coca-Cola, which offers the Crystal mineral water brand. Thus, the aim of this study is to identify whether bottled water consumers were attracted to the sustainability appeal proposed by this brand. The study surveyed 257 consumers in Minas Gerais (Brazil), and the data showed the presence of three groups. Cluster 3, composed predominantly of women, included individuals who were more willing to purchase the product, unlike cluster 1, composed mainly of men, who were not as willing. Cluster 2, also composed mainly of women, were indifferent to EcoDesign. Since two thirds of the sample studied was not willing to purchase an environmentally friendly product, it can be inferred that there is an awareness gap among Brazilian consumers regarding sustainable consumption.

Keywords: *EcoDesign, Sustainable Consumption, Mineral Water.*

1. INTRODUCTION

Current patterns of consumption and production systems based on traditional practices and commercial technologies do not have the sustainability characteristics needed to change the environmental situation in contemporary society (Tseng et al., 2013). The fact that the economic growth model is based on maximizing production and consumption generated huge economic, social, and environmental imbalances (Battistella, Velter, & Grohmann, 2012; De Toni, Larentis, & Mattia, 2012; Fabi, Lawrence, & Smith, 2010; Gombert-Courvoisier et al., 2014; Brizga, Mishchuk, & Golubovska-Onisimova, 2014) has aroused the concern of industry and consumers for more sustainable practices for producing and consuming.

Vinkuysen (2014) pointed out that one of the biggest challenges in transforming society into one that promotes sustainability is adopting a systematic perspective and then translating this production and responsible consumption around the world, including the physical, social, and institutional structures involved. In this context, the role of business has been to introduce new production processes and new products that can act positively in reducing the negative impacts generated by the economy. Luchs et al. (2010) and Lin and Chang (2012) observed that companies are increasingly producing and promoting sustainable products, for example, products that have a social impact and/or positive environmental actions that facilitate green consumption. However, in contrast to the positive business initiatives, Silva et al. (2014) reported that although many consumers are concerned about environmental issues, individuals do not necessarily care about green products.

Akenji (2014) observed that simple activities such as buying bottled water packaged in a recyclable polyethylene terephthalate (PET) bottle have begun to have greater significance in green consumerism. In the Brazilian bottled mineral water market, according to Dib (2013), there is room for the market to expand, since consumption per capita in Brazil is 50 liters/year, less than one third that of European consumption, which is 140 liters/year. According to Dib (2013), the country has shown intense movement on projects for functional products in this category. To meet this imperative for sustainability, EcoDesign, created by Karlsson and Luttrupp (2006), integrates multi-faceted aspects of design and environmental considerations. These products are designed to meet the needs of consumers while decreasing the environmental impact of production and consumption.

Lin and Chang (2012) emphasized that consumers can view products considered “green” differently from traditional products and thus make different inferences. However, Luchs et al. (2010) noted that the degree to which sustainability increases consumer preference depends on the type of benefit that consumers value most in the product category in question. Compared to regular products, these green products tend to use non-toxic ingredients, are biodegradable, and are packaged in bottles that can be recycled, but can be sold at a price 20% to 25% higher than that of traditional products (Lin & Chang, 2012). Phippis (2013) explained that consumers weigh the expected benefits of each decision against the estimated costs, in order to determine which option offers the most value. In addition, according to Luchs et al. (2010), one way to decrease rejection of environmentally friendly products is a marketing campaign based on the strength of the product, which highlights the product’s positive side.

One company investing in sustainable products through the use of EcoDesign is Coca-Cola Brazil, which offers the Crystal mineral water brand, bottled in a pack considered sustainable by using 20% less plastic (Mineral Water Crystal, 2014). Aware that this market is thriving, in recent years Coca-Cola has expanded sales of this product to other states and uses advertising that seeks to educate the consumer to be loyal to the product, showing the environmental benefits related to the brand.

Luchs et al. (2010) observed that little is known about how sustainable products affect consumer preferences. Thus, the research problem raised by this study is: Are Brazilian consumers who are attracted by the sustainable appeal of the 500 ml bottle of Crystal brand mineral water willing to buy this product? Since analyzing the company from a consumer-driven approach has numerous implications for social sciences and environmental policies (Portilho, 2005), the aim of this study is to identify whether consumers of 500 ml bottled water are attracted by the sustainability appeal proposed by the EcoDesign of the Crystal brand and are willing to buy this product. Thus, this study will provide information not only regarding the acceptance of the brand addressed in this study but also generate more knowledge by tracing nuances of Brazilian consumer behavior regarding sustainability.

This paper is organized into five sections, including the introduction. The second section is a bibliographical review, covering topics such as the environmental crisis and the role of consumers and businesses in promoting more sustainable activities while also addressing definitions and reflections on EcoDesign and the case study in question, the Crystal mineral water brand. The third section discusses the methodological aspects of the study, the fourth deals with the analysis of the results, and the fifth concludes with the final considerations of the study.

2. THEORETICAL

2.1 *The environmental crisis and the role of consumers and businesses in sustainable development*

According to Battistella, Velter, and Grohmann (2012), as environmental problems worsen, there is greater interest in protecting the environment, which affects current consumption patterns (Briceno & Stagil, 2006). Future projections show new requirements for protecting nature so that serious future consequences do not negatively affect the welfare of the population (Akenji, 2014).

Cho et al. (2013) pointed to the fact that many people express a strong concern for the environment, but admit that the concern does not always translate into behavior change. Silva et al. (2014) corroborated this thought and observed that consumers do not realize the importance of changing their consumption habits, maintaining the same routine purchases, and indicating a possible intention to purchase environmentally friendly products has low influence on an individual's actual purchase behavior. This attitude can be seen in Pinto et al.'s (2014) results, in which a portion of young people was skeptical about their ability to change their spending habits to contribute to more sustainable food production. This is a negative reality, for reflecting on the act of consumption must be accompanied by positive attitudes so that changes can occur. According to Heathe and Chatzidakis (2012), any realistic assessment of environmental issues must consider that we need to consume to live, but we must also reflect critically on the high levels of consumption and production in the developed world, as well as on increased consumption in countries such as China, India, and Brazil.

Kronrod, Gristein, and Wathieu (2012) observed that although protecting the environment is increasing among companies, governments, consumers, and society at large, not everyone shares this point of view. In many situations, these authors observed, persuading consumers to act in an environmentally responsible manner is challenging, since the beneficiary of the socially responsible behavior is not always the consumer directly but often the society as a whole. This negative behavior was shown by Luchs et al. (2010), who observed a significant difference between the manifestation of consumers of a provision in buying sustainable products and the consumers' actual purchasing behavior. Many people are willing to buy such products but do not actually purchase them. Continuing this discussion, Soron (2010) observed that there is a lack of willingness of consumers to leave the consumer lifestyle to which they are accustomed, thus signaling inertia that leads to a hedonic moral lapse in consumption.

White and Simpson (2013) explained an issue that arises in the sustainable consumption behaviors context is that consumers tend to resist engaging in activities that involve a cost to themselves, such as additional time, increased effort, and behavior change, although the objective of sustainable consumption is to promote a better society. However, there are many potential reasons for the relatively low market share of sustainable products. Sustainable options available in the market can be expensive or difficult to find compared to traditional products, reducing sustainable consumption (Luchs et al., 2010; Phippis, 2013).

Regarding discussions on sustainable development, Silva Oliveira and Gomez (2013) emphasized that it is becoming increasingly clear that the stakeholders in different areas must work and assume specific roles in this new context. Thus, in this market, in which consumption and production are inseparable and interdependent factors, it is clearly difficult to effect change in one part without also changing others (Silva Oliveira & Gomez, 2013). Tseng et al. (2013) pointed out that industry, through its role in society, has contributed significantly to polluting and exploiting the environment. Thus, it is only fair that companies target actions to minimize the environmental impacts of their production processes. According to Felizardo (2010), companies should treat sustainable development like any other corporate investment program, taking into account budgeting and forecasting returns in economic terms, and these companies are aware that innovations that do not harm the environment can become a very important competitive advantage today.

Lenzen et al. (2007) addressed that companies should recognize their wider responsibility and manage the entire life cycle of their products. Insisting on high environmental standards for suppliers and ensuring that the raw materials are extracted or produced in a conscious environment provides a starting point for these changes (Lenzen et al., 2007). In this context, Pigosso, Rozenfeld, and McAloone (2013) pointed out that over the past few decades, EcoDesign has emerged as a promising approach for integrating environmental concerns with the development of products and processes. This theme will be deepened, with a discussion of definitions and reflections.

2.2 EcoDesign, packaging, and Crystal mineral water

Although environmental issues have been discussed in the context of product design for almost a century (Bocks, 2006), it was only at the beginning of the 1990s that interest in this field of study began growing (Bocks, 2006; De Caluwe, 2004; Johansson, 2002). In 1992, the United Nations Conference on Environment and Development, also known as Rio or Eco 92, was held in Brazil (Barbato, 2004). Before this event, the initial industrial environmental consciousness was focused on solutions for reducing the emissions of harmful substances from manufacturing processes (Johansson, 2002), but in 1992, this awareness broadened, and in recent years, the design of the environmental impacts of products has been widely studied (Cor et al., 2014).

Karlsson and Luttrupp (2005) noted that EcoDesign is a concept of sustainability that interrelates human priorities with business, which considers the needs of future generations as a gift (De Caluwe, 2004). There are

several definitions of EcoDesign; among them is Straliozzo's (2009) succinct conceptualization that this is not a product-oriented design based on ecological criteria. Candido (2008) deepened the concept and explained that:

EcoDesign regard[s] the act of designing products with concern focused on the environment and throughout their life cycle, avoiding or decreasing aggression to the ecosystem, looking through the proper use and selection of materials or manufacturing processes, facilitating, somehow, the reuse, disassembly and recycling of materials and products. (p. 18, translated from Portuguese)

By analyzing other authors as Johansson (2002), Borchardt et al. (2008), Felizardo (2010), and Pigosso et al. (2013) concurred that the term refers to actions taken in the development of a product in order to minimize the environmental impact of the product throughout its life cycle. Luttrupp Karlsson (2005) observed that EcoDesign aims to use the inspiration of a wide field of positive examples, intelligent products, efficient system solutions, and attractive designs to create sustainable solutions that meet human needs and desires.

Pigosso et al. (2013) emphasized that any organization can benefit from adopting EcoDesign, regardless of size, geographic location, corporate culture, and sophistication of the management system, and convert several challenges in market opportunities. However, the adoption of environmentally responsible strategies still faces skepticism from industry, whose leaders have questioned the cost-benefit (Plouffe et al., 2011). This is negative disbelief because, according to De Toni et al. (2010), many consumers are willing to pay more for brands that respect the socio-environmental system. According to the authors, this disbelief is particularly true in small and medium enterprises because of the very nature of their operations. Felizardo (2010) pointed out that some companies claim they do not feel responsible for protecting the environment.

According to Felizardo (2010), EcoDesign could be developed in the Brazilian market, with the potential to generate production costs saving and reduce environmental impact by reducing the waste generated. Akenji stated (2014) that EcoDesign is not intended to change the system, but modify the production processes and the ways products are consumed, for example, in industry, packaging. Barbato (2004) stated that a company can be efficient when one can reduce, reuse, and recycle their products, especially packaging. According to Palhares (2003), many spheres have attached to packaging the role of the great environmental villain, considered a major hassle of industrial societies. Thus, the important EcoDesign element of this product becomes an interesting alternative to sustainably contribute to the environment.

A company that envisioned and bet on that innovation in their products was Coca-Cola Brazil. In 1995, Crystal brand mineral water, a product with 20% less plastic in the packaging that was more practical to recycle, was launched only in the state of São Paulo (Revised Water and Life, 2013) (Mineral Water Crystal, 2014). The product is available in various versions, ranging from a 250 ml bottle to 10 liter bottles to gallon bottles. Over the years, the company has expanded the distribution of this product to other regions in Brazil, aiming to win a larger share of this market. Dib (2013) emphasized that the investments of large players are significant in increasing production, the sales points, as well as in marketing investment, to bring the message to consumers of the importance of healthy habits through proper hydration.

3. METHODOLOGY

This research format was quantitative, with a descriptive purpose, and is a case study. According to Malhotra (2001) and Cooper and Schindler (2003), descriptive research aims to study the characteristics of a group in order to detect whether variables are in a type of relationship. Yin (2005) defined a case study as a useful research technique in complex cases in which one should worry about the characteristics of the phenomenon under study, based on a set of characteristics associated with the data collection process and analysis strategies. Yin (2005) pointed out that the case study is an important methodological strategy since it allows the researcher to deeply study a phenomenon.

During data collection, a structured questionnaire based on scales adopted and proposed by Serpa (2006) was developed. This author, in the *Effects of Corporate Social Responsibility in Consumer Perception of Price and Value: An Experimental Study*, used adaptations and translations scales to measure the perceived justice constructs price, perceived value of the act of buying, and purchase intent; however, to measure the variable perceived benefit, Serpa (2006) developed his own scale. This scale was also used in this study. Variables 1 to 4 were related to the perceived benefit, variables were 5 to 7 related to the perceived value, variables 8 to 10 were related to intention to buy, and variables 11 to 14 were related to the perceived fairness of the price.

Serpa (2006) observed that the consumer perceives an additional benefit in a product offering whose company invests in social responsibility, which through the act of purchasing the consumer feels good about contributing to improving the site conditions for lives and society as a whole. However, according to Serpa (2006), the consumer tends to perceive a higher value in the offer of a socially responsible company and is willing to pay a

premium for this difference. In addition, according to Serpa, consumers judge the fairness of the price premium charged by companies that invest in social responsibility actions. During the current study, which was conducted from May to July 2014, the price of the Crystal 500 ml bottle was checked at nine supermarkets in two cities. This price check showed that Crystal water was approximately 15% higher than that of other bottled mineral water brands.

All scales had 7 points, and the number of variables 1 to 10 were agreement scales, where 1 meant *strongly disagree*, 4 *neither agree nor disagree*, and 7 *strongly agree*. In the perceived price fairness construct, in which respondents assessed the price premium charged by Crystal in terms of variables 11-14, for variable 11, 1 represented *unfair* and 7 *fair*. In variable 12, 1 represented *unacceptable* and 7 *acceptable*. In variable 13, 1 meant *unsatisfactory* and 7 *satisfactory*. Finally, in variable 14, 1 meant a price premium was *very high*, and 7 meant it was *very low*.

Data was collected from May to July 2014, and in-person interviews were conducted with 147 respondents in two cities in the state of Minas Gerais, Juiz de Fora and Rio Parnaíba, and via online with 110 individuals, throughout the entire country, through Google Docs; a total of 257 questionnaires were completed. Regarding sampling, Hair et al. (2005) pointed out that the recommended minimum size is five observations for each independent variable. In this study, 14 variables were used, and a ratio of 18.36 respondents per variable was generated; this proportion was higher than that recommended by Hair et al. (2005). The type of sampling was non-probabilistic and convenience.

Among the respondents, 59.9% were female and 40.1% male; 23.0% were aged 15 to 19 years and 53.3% 20 to 24 years. As for education, 81.3% attended higher education. Of these 257 respondents, 91.1% were single, and 35.8% had a monthly income of R\$2,896.00 to R\$7,240.00 and 29.6% from R\$1,448.00 to R\$2,896.00.

After the data was tabulated in Statistical Package for Social Sciences (SPSS) version 17.0, there were two analysis of multivariate data: cluster analysis and discriminant analysis.

4. ANALYSIS OF RESULTS

4.1 Cluster analysis

The cluster analysis is an exploratory technique in which variables or subjects in groups are grouped with relatively homogeneous characteristics in common (Hair et al., 2009). This procedure was used to search Ward's hierarchical agglomerative method and the Euclidean distance squared. Two- and three-cluster solutions were found, but we opted for the three-cluster solution, because after the differences between groups were analyzed, this solution best defined the differences between the groups of variables. The main profiles of the groups are shown in Table 1.

4.2 Discriminant analysis

Then discriminant analysis was performed. According to Hair et al. (2005), the variable that causes greater divergence can distinguish groups of individuals. In this study, the three groups were extracted with cluster analysis, to identify the variables that most discriminate the three groups of individuals surveyed. The stepwise method was used.

To confirm that the discriminant analysis was correct, several tests were used. The mean equality test groups with one-way analysis of variance (ANOVA) identified the variables that best discriminated the formed clusters. Favero et al. (2009) explained that the statistical lambda Wilks, which varies from 0 to 1, tests the existence of differences in means between groups for each variable. Thus, the smaller the difference, the higher signal values between the groups. The variable that most discriminated groups was number 5, "If I buy a bottle of Crystal brand water, I will receive my money's worth"; the Wilks' lambda in this test was 0.482. Favero et al. (2009) also reported that the Sig. F expresses differences between the means, where values closer to 0 indicate a more different medium. The F statistic of variable 5 was also the largest, 136.469 and 0.000 sig. All 14 variables discriminated the groups.

Tables 2 and 3 present a summary of the canonical discriminant functions. Table 3 shows the eigenvalues for each discriminant function. In this study, since there were three groups, two discriminant functions were defined, where the first discriminates against groups of substantially better shape than the second due to their high canonical correlation coefficient, 0.885. This result means that 78.3% (.8852) of the variance of the independent variables was explained by this model. We selected seven variables with the stepwise procedure.

As can be seen in Table 3, function 1, with a Wilks' lambda value very close to zero (0.176), becomes a chi-square 435.682 with 14 degrees of freedom, and sig. 0.000 shows a highly significant discriminant function.

There is a statistically significant difference between the evaluations of the three groups. Thus, Table 3 shows the Wilks' lambda value for each eigenvalue.

The analysis of the observations classification results in each cluster showed that 89.5% of the cases were classified correctly, where 88.6% of the respondents in cluster 1 were correctly classified as in their original group. For respondents in cluster 2, 90.0% were correctly classified in the cluster and 89.6% for cluster 3. Table 4 shows the seven variables that discriminated three more consumer groups, the Wilks' lambda values, and the F Sig.

After the variables that distinguished were identified, the clusters were organized as shown in Tables 5-11. In each table, each variable is shown individually, including the average value and standard deviation in each cluster for better understanding of the formation of these groups and the agreement scores.

Table 5, which shows the results for variable 5, related to the value that the individual perceives he or she will receive from purchasing the Crystal brand bottled water, indicates that clusters 1 and 3 differ in this perception of value. The cluster 1 individuals, with an average response of 1.80, tended to disagree completely that the act of buying this product meant that this individual would spend a fair and appropriate amount of money. However, cluster 3 had a high average (5.20), which showed that the members of this group tended to partially agree. Cluster 2, with a mean of 4.26, was impartial regarding this assessment of perceived value.

The results in Table 6, for variable 12, which evaluated the degree of acceptance by respondents in relation to the price of the Crystal brand bottled water in the market, indicate that cluster 3, with a high average value (6.16), accepted the price of the product; the majority of the respondents considered the higher difference acceptable. Clusters 1 and 2 were likely to have no opinion regarding this aspect; the means were close to 4 (3.71 and 4.16, respectively).

In the table, the results indicate that cluster 3 had the highest average, 6.14, this time for variable 10, which evaluated the respondent's intention to purchase. Thus, the members of this cluster were likely to agree completely with the statement that they would probably buy the bottled water. Cluster 1 agreed the least with the statement, with a mean value of 2.93, and cluster 2 had no opinion (the average was 4.10).

For variable 2, "buying Crystal brand bottled water would make me feel I'm doing the right thing," cluster 1 had a low average, 2.48. This value reflects the group members' strong disagreement regarding the perceived benefit of buying the product, unlike cluster 3, which had a higher average than the rest (5.53). The average value of cluster 2, 4.38, strengthened the characteristics of this group as more impartial regarding the presented topics, which is shown in Table 8.

In Table 9, the respondents' satisfaction regarding the price charged for the Crystal brand bottled water, cluster 1, with an average value of 5.74, had considerable satisfaction regarding the price. Cluster 3 was dissatisfied with the price, and cluster 2 was impartial (3.91).

In Table 10, in which the results for variable 14, "the price differential intensity charged," are shown, cluster 3 thought the price was fair (mean 4.58), but did not think that is or very low or too high in relation to the differential price. Cluster 1 had the lowest average for this variable, 3.11, which showed that the individuals partially regarded the price distinction as too high. The average for cluster 2 was close to neutral.

The last variable that discriminated the three clusters was variable 3, described in Table 11. The perceived benefit of buying the water for the respondents was investigated in this variable, which analyzed the degree of agreement with the statement "If I buy a bottle of Crystal brand water, I will benefit." Cluster 3 and cluster 1 opposed this statement. The third cluster tended to partially agree (average 5.57), and cluster 1 tended to partially disagree (average 2.58). Cluster 2 was impartial.

Cluster 3 tended to agree with most variables and accepted higher prices than the other two clusters. The highest average for this cluster was about the number of variables 0:10, related to the acceptance of the price charged and future intention to buy the product. The results were quite positive since the high acceptance of this group compared to the price also came with a strong intention to purchase the product in the future. Cluster 3 composed 30.0% of the studied sample, consisting mostly of women (64.9%). In addition, all clusters were formed mostly by individuals 20-24 years old, with some higher education, who were single and whose income ranged between R\$2,896.00 and R\$7,240.00.

In cluster 1, the profile is quite different compared to the third cluster. The scores of the middle of this group were always the smallest of all variables, never exceeding 4, which indicated a tendency to disagree with and reject the statements. The lowest average in this cluster, which was the variable in 5:02, was the first one related to the perceived value and then the perceived benefit. Thus, these respondents felt that if they bought this brand of bottled mineral water, they would not get a benefit that offsets the disbursement of the amount paid and also felt that buying this product was inappropriate. This group was made up predominantly of men (52.9%).

The average values for all seven variables for cluster 2 were close to 4, indicating that these respondents mostly had no opinion on the issues addressed by this study. Women represented 64.5% of this group.

5. CONCLUSIONS

This study aimed to identify whether consumers of 500 ml bottled mineral water were attracted by the sustainability appeal proposed by the EcoDesign of the Crystal brand, and were willing to buy this product. The results show, among the studied sample, the presence of three distinct groups of consumers, who responded differently regarding the perception of perceived benefit of the purchase of the product as well as the perceived value, the fairness of the price differential, and intention to purchase.

Cluster 3, composed predominantly of young female consumers, was more attracted by the sustainability appeal of the Crystal mineral water brand, unlike the cluster 1 individuals, who were mainly young male consumers, who showed resistance to purchasing the product. Since the study sample is non-probabilistic, some of the surveyed women were more sensitive to environmental issues, and realized benefits of purchasing the brand in question, valuing the acquisition and signaling a willingness to buy the product. In contrast, other young women had no opinion on the questions, thus indicating many consumers must be made aware of environmental issues so they may become a group of individuals who promote sustainable consumer products, and thus contribute to improving the current environmental issues.

The results promote a reflection on the strong resistance from some consumers to changing their consumption habits in favor of sustainable actions of buying and using products. Since only one third of the sample was characterized as individuals susceptible to the environmental appeal of the studied brand, a future study should determine which attributes of this product were involved in the negative purchase intent of this eco-friendly packaging. Discovering the reasons that interfere negatively with the purchase intention of the brand that are not related to the higher price could provide relevant information for the academy and industry for better understanding the attitudes of these consumers. Investigating gender issues would also show whether gender is relevant, to identify whether there are actually significant differences of opinion between men and women in relation to sustainable packaging appeals based on EcoDesign.

This case study examined a specific product and brand, Crystal brand 500 ml bottled mineral water. Thus, research should be expanded to other products with EcoDesign to understand whether it is accepted in different types of products.

Since two thirds of the sample surveyed were not attracted by the appeal of the brand sustainability to buy the environmentally friendly product, it can be inferred that there is an awareness gap among Brazilian consumers regarding their contribution to more sustainable consumption. For the industry in general and more specifically the producers of bottled mineral water, these results are relevant as evidence of the presence of different consumer groups: some are attracted by sustainability appeals, others are indifferent (mostly), and some are resistant.

Therefore, different forms of strategic actions must be planned to appeal to the various types of consumers. This study reduces the gap Luchs et al. (2010) discussed regarding the lack of studies on how sustainable products affect consumer preferences. The identification of the most consumers in the sample were indifferent to these products shows there is a broad space to discuss and delve into this position since environmental problems must be resolved.

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TABLE ANNEX

Table 1: Profile of clusters

Segmentation Variables	Cluster 1	Cluster 2	Cluster 3
Number of subjects	70 (27.2%)	110 (42.8%)	77 (30.0%)
Gender	Female – 47.1% Male – 52.9%	Female – 64.5% Male – 35.5%	Female – 64.9% Male – 35.1%
Age	15 to 19 years – 14.3% 20 to 24 years – 61.4% 25 to 29 years – 15.7% 30 to 34 years – 1.4% 35 to 39 years – 2.9% 40 to 44 years – 2.9% 45 to 49 years – 1.4%	15 to 19 years – 29.1% 20 to 24 years – 46.4% 25 to 29 years – 14.5% 30 to 34 years – 7.3% 35 to 39 years – 1.8% 40 to 44 years – 0.0% 45 to 49 years – 0.9%	15 to 19 years – 22.1% 20 to 24 years – 55.8% 25 to 29 years – 9.1% 30 to 34 years – 10.4% 35 to 39 years – 1.3% 40 to 44 years – 0.0% 45 to 49 years – 1.3%
Education	Some High School– 2.9% High School Graduate – 0.0% Some Graduate – 78.6% Graduate – 7.1% Some post-grad.– 1.4% Post-graduate– 10.0%	Some High School–1.8% High School Graduate – 2.7% Some Graduate – 80.0% Graduate – 7.3% Some Post-grad. – 1.8% Post-graduate – 6.4%	Some High School – 2.6% High School Graduate – 2.6% Some Graduate – 85.7% Graduate – 2.6% Some Post-grad. – 2.6% Post-graduate – 3.9%
Family Income	Up to R\$1448 – 14.3% R\$1448 to R\$ 2896 – 27.1% R\$2896 to R\$7240 – 35.7% R\$7240 to R\$14480 – 18.6% More than R\$14480 – 4.3%	Up to R\$1448 – 19.1% R\$1448 to R\$ 2896 – 31.8% R\$2896 to R\$7240 – 38.2% R\$7240 to R\$14480 – 5.5% More than R\$14480-5.5 %	Up to R\$1448 – 23.4% R\$1448 to R\$ 2896 – 28.6% R\$2896 to R\$7240 – 32.5% R\$7240 to R\$14480 – 10.4% More than R\$14480 – 5.2%
Marital Status	Single – 91.4% Married – 5.7% Living together – 2.9% Divorced – 0.0% Widowed – 0.0%	Single – 89.1% Married – 7.3% Living together – 0.9% Divorced – 1.8% Widowed – 0.9%	Single – 93.5% Married – 6.5% Living together – 0.0% Divorced – 0.0% Widowed – 0.0%

Source: research data

Table 2: Wilks' Lambda and Chi-square

Function	Eigenvalue	% of variance	% accumulated	Canonical Correlation
1	3.603	93.9	93.9	0.885
2	0.233	6.1	100	0.434

Source: research data

Table 3: Wilks' Lambda and Chi-square

Function	Wilks' Lambda	Chi-square	df	Sig.
1	0.176	435.682	14	0.000
2	0.811	52.474	6	0.000

Source: research data

Table 4: Results of discriminant analysis, highlighting the Wilks' lambda statistic, the F test, and the significance level at every step

Step	Variables	Wilks' Lambda	F	Sig.
1	5. If I buy a bottle of the Crystal water brand, I will get my money's worth	0.482	136.47	0.000
2	12. Acceptance price charged	0.325	95.43	0.000
3	10. I'll probably buy a bottle of Crystal brand water	0.237	88.38	0.000
4	2. Buying the Crystal bottled water brand makes me feel I'm doing the right thing	0.206	75.44	0.000
5	13. Satisfaction with the price charged	0.190	64.69	0.000
6	14. Price differential intensity charged	0.183	55.53	0.000
7	3. If I buy a bottle of Crystal brand water, I will benefit	0.176	48.95	0.000

Source: research data

Table 5: Means and standard deviations of the clusters for variable 5

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
5. If I buy a bottle of water Crystal brand, I will get my money's worth	1.80	1.07	4.26	1.25	5.20	1.51	3.75	1.27

Source: research data

Table 6: Means and standard deviations of the clusters for variable 12

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
12. Acceptance price charged	3.71	1.60	4.16	1.36	6.16	1.09	4.67	1.35

Source: research data

Table 7: Means and standard deviations of the clusters for variable 10

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
10. I'll probably buy a bottle of water Crystal brand	2.93	1.70	4.10	1.47	6.14	1.14	4.39	1.43

Source: research data

Table 8: Means and standard deviations of the clusters for variable 2

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
2. Buying the Crystal bottled water brand makes me feel I'm doing the right thing	2.48	1.63	4.38	1.25	5.53	1.66	4.13	1.51

Source: research data

Table 9: Means and standard deviations of the clusters for variable 13

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
13. Satisfaction with the price charged	3.27	1.49	3.91	1.21	5.74	1.17	4.30	1.29

Source: research data

Table 10: Means and standard deviations of the clusters for variable 14

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
14. Price differential intensity charged	3.11	1.42	3.84	0.84	4.58	1.15	3.84	1.14

Source: research data

Table 11: Means and standard deviations of the clusters for variable 3

	Cluster 1 n=70 (27.2%)		Cluster 2 n=110 (42.8%)		Cluster 3 n=77 (30.0%)		Total n=257 (100.0%)	
	Means	DP	Means	DP	Means	DP	Means	DP
3. If I buy a bottle of water Crystal brand, I will benefit	2.58	1.60	4.16	1.24	5.57	1.44	4.10	1.42

Source: research data