

# THE IMPACT OF USING COMPOSTABLE CARRIER BAGS ON CONSUMER BEHAVIOUR IN THE CITY OF BELO HORIZONTE, BRAZIL

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SABRINA C. SANTOS<sup>1</sup>, CAISSA VELOSO E SOUSA<sup>2</sup>, DANILO DE OLIVEIRA SAMPAIO<sup>3</sup>, ANDRÉ FRANCISCO ALCÂNTARA FAGUNDES<sup>4</sup>

## Introduction

The use of plastic carrier bags by retailers has been a subject of debate in many countries, including Brazil. In fact, draft legislation has been developed to regulate their use. This is because there is greater awareness of the negative effects these types of bags can have on the environment. According to the Brazilian Supermarket Association (ABRAS, 2012), 80% of plastic bags are used only once and then thrown away. They are usually re-used for storing domestic waste. Every month, Brazilian supermarkets distribute a billion plastic bags to their consumers.

However, consumer behavior is changing as discussions on this topic become more prevalent, influencing consumer choice of products and retailers. It is important to point out that for Blackwell, Miniard and Engel (2011), purchasing behavior is influenced by a variety of factors: cultural (culture, sub-culture, social class); social (reference groups, family, social role and position); personal (age, occupation, economic status, lifestyle and personality) and psychological (motivation, perception, education, beliefs and attitudes). Thus, organizations have to develop new competitive strategies which take into account the changes that influence consumers, be these personal, psychological or cultural, and within this context, they need to consider consumers' greater awareness of the importance of preserving the environment.

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1. FEAD [School of Management and Administration], Federal University of Minas Gerais [UFMG] E-mail: caissaveloso@yahoo.com.br

2. Novos Horizontes Faculties and CEPEAD[Post-Graduate Centre in Management and Administration]/UFMG. E-mail: caissaveloso@yahoo.com.br

3. CEPEAD/UFMG and FACC/UFJF [School of Management, Administration and Accountancy/Juiz de Fora Federal University. E-mail: danilo.sampaio@ufjf.edu.br

4. FAGEN/UFU [School of Management and Business/Federal University of Uberlândia] and CEPEAD/UFMG. E-mail: andrefagundes@fagen.ufu.br

Green marketing, therefore, is now a relevant topic for discussion. Its main objective is to make people and organizations aware of environmental issues by using marketing strategies. Environmental marketing - or green marketing - encompasses all activities developed to generate and promote trade in order to satisfy the needs and desires of consumers, provided that they cause the least amount of negative impact on the environment (2020SUSTENTAVEL, 2012).

Therefore, in face of the pioneering measures taken by the municipality of Belo Horizonte which passed a law establishing the replacement of plastic carrier bags by compostable bags, the current article seeks to provide an answer to the following question: what is the impact of using compostable bags on the purchasing behavior of consumers in the city of Belo Horizonte, state of Minas Gerais (MG), Brazil?

The main objective of this research is to analyze consumer behavior change brought about by the substitution of plastic carrier bags with compostable bags in the city of Belo Horizonte. More specifically: (i) identify the impact of using compostable bags on the purchasing decisions of consumers; (ii) assess whether Belo Horizonte consumers support Municipal law 9529/2008, which establishes the substitution of plastic carrier bags and (iii) find out whether consumers in the city are willing to change their purchasing behavior to reduce negative impacts on the environment.

## Theoretical Framework

### *Consumer behavior*

Marketing is present in people's lives either directly or indirectly. It seeks to provide opportunities to satisfy the needs of individuals by providing goods and services. Marketing encompasses all activities related to the commercial exchange of goods and services. Its purpose is to satisfy the desires and needs of consumers, in order to attain the specific objectives of organizations and individuals, taking into account the environment where activities are carried out and the impact this relationship has on the well-being of society (et al. *et al.*, 2001).

Kotler (1998, p. 27) argues that "marketing is a social and managerial process by which individuals and groups obtain what they need and want by creating, supplying and exchanging value products for others." Therefore, he argues that marketing tends to have an important role in the day-to-day of consumers. It plays an active role in their daily lives, given that marketing professionals seek to identify consumer behavior and satisfy their needs and desires.

As individuals become more informed and discerning, they tend to be more demanding. When launching new products in the market, it is important to understand the both way and the reasons why consumers buy things so as to meet marketing objectives. Solomon (2002, p. 25) argues that consumer behavior encompasses "the study of the processes which take place when individuals or groups select, buy, use and discard products, services, ideals or experiences in order to satisfy their needs and desires". Blackwell, Miniard and Engel (2011) complement this explanation by arguing that the variables

which mould purchasing behavior can be divided into three categories: (a) individual differences; (b) environmental influences; and (c) psychological processes.

They argue that individual differences can be classed as knowledge, attitudes, consumer resources, motivation, personality, values and the life-style of individuals. Environmental influences can be grounded on culture, social class, personal and family influences, and the situations in which consumers find themselves. Psychological processes relate to the way individuals process information, their education and changes in attitude and behavior.

Kotler (1998) claims that purchasing behavior is influenced by four types of factors: (a) cultural; (b) social; (c) personal and (d) psychological. He highlights that cultural factors strongly influence this type of behavior. Thus, culture is considered to be the main determinant of a person's behavior and desires. Another important factor is consumer subculture. That is, the subdivision into smaller groups with distinct identities and tendencies relating to items such as food, dress and perception. Thus, sub-cultures can even result in the emergence of market segments or niches.

Social class also determines behavior. Kotler (1998) argues that behavioral differences related to the social class of consumers can be exemplified by dress, conversation and leisure activities, among other factors.

However, in order to have a better understanding of consumers, it is important to analyze not only what influences purchasing behavior, but how consumers actually make purchasing decisions. Sheth, Mittal and Newman (2001) describe five stages of the consumer purchasing decision-making process: (i) problem recognition; (ii) information gathering (iii) assessment of alternatives; (iv) purchase and (v) post-purchase experience.

The first stage of the purchasing decision-making process - problem recognition - is the moment in which consumers recognize a need which must, or can, be resolved by a purchase. The second stage - information gathering - is defined by Karsaklian (2004, p. 181) as "the analysis of information stored in the memory which can be complemented, if necessary, by external research" in order to find solutions to a problem which has been previously recognized. The assessment of alternatives means that consumers compare the available solutions and chose the solution which, in their opinion, best meets their purchasing needs. Kotler (2000, p. 198) claims that "there are a number of decision assessment procedures and more current models see this process as cognition-oriented. That is, they see consumers as making rational judgments".

The purchasing decision, that is, the fourth and penultimate stage of this process, is defined by Sheth, Mittal and Newman (2001) as the actual process of acquiring a product or service which is either the preferred product or an acceptable alternative. Finally, the last stage takes place after consumption occurs. The post-purchase process can determine a potential re-purchase. At this stage consumers assess the purchase and decide, through this assessment, whether they are satisfied with the product or service acquired. If they are satisfied with their choice, it is likely that when a similar need arises, consumers will tend to make the same choice that previously satisfied them. However, if they are left feeling dissatisfied with their choice, it is very unlikely that they will choose to make the same purchase in the future (KARSAKLIAN, 2004; KOTLER, 2000).

## Green Marketing

Since the last decade of the 20th century, one of the markets that has shown the greatest potential is that of green products. This is particularly due to the growing importance of 'environmental awareness' in society. According to Butzke *et al.* (2001 in BERTOLINI, POSSAMAI, 2006, p. 19) "environmental awareness is a set of concepts acquired through information received which influences and determines environmental behavior".

People's awareness of environmental problems have led to changes in behavior and a preference for products which are better for the environment, that is, products which are ecologically correct. Waldman and Schneider (2000) argue that green products are those that do not negatively affect the environment. They either produce little or no pollution or are produced from recycled materials.

According to Polonsky (1994), organizations which opt to use green marketing develop a set of strategies seeking to supply goods and/or services which not only meet the needs of consumers but also cause little or no impact on the environment. Félix (2004) complements this idea by explaining that many organizations are seeking to develop products with low environmental impact.

Calzada (1998) argues that environmentally correct consumers are well-informed in terms of the environment and know what they want. Portilho (2005) argues that these consumers do not consume less, but differently. Thus, they help to foster the green consumer market, recycling techniques, the use of clean technologies and a reduction in waste. Therefore, the main objective of green marketing is to make people and organizations aware of environmental issues by using marketing strategies.

Roberts (1996) corroborates this argument and states that consumers who value ecological awareness prefer to purchase goods and services which do not harm the environment, or at least have a lower impact than their competitors.

According to Bertolini and Possamai (2006) many organizations have been investing in environmental programs and developing ecologically correct products such as Natura, Michelin, IBM and Xerox. Some of these companies hold the ISO 14001 certificate. They argue that environmental issues are on the agenda of corporations, highlighting the fact that the number of organizations holding certificates for good environmental behavior increased by over 400% between 2001 and 2004.

Green or environmental marketing may be used as a supporting and monitoring tool from the development, production and delivery stages of a product through to its disposal. It aims to meet the needs and desires of consumers and provide its various publics with a solution combining profit-making with environmental responsibility (MAIA, VIEIRA, 2004, p. 23).

Thus, a concern for the environment can be seen as a competitive differential which organizations should consider. Donaire (1999) argues that an organization's profitability

is significantly influenced by its ability to react to the political and social changes taking place. This is because part of its financial resources, and even the institutional image of an organization, can be compromised if these aspects are not taken into account. For Do-naire, therefore, green marketing seeks to fulfill the desires and expectations of consumers motivated by environmental needs. It changes in accordance to socio-environmental values and seeks to satisfy the demands of these consumers.

### *Plastic bags and consumption*

Conventional plastic bags, also known as oxo-biodegradable, are used to carry shopping from supermarkets. They emerged in the 1950s in the United States and arrived in Brazil in the 1980s, substituting paper bags, previously used for this purpose (AMIS, 2011).

Conventional plastic carrier bags are widely used by retailers in most of Brazil. They are produced using polyethylene, a substance derived from oil and oxidizing additives. They take approximately 400 years to decompose in the soil (PORTALPBH, 2011).

The chemical elements in the formulation of additives can harm the environment. Furthermore, their use can also lead to other types of environmental harm, for example, small plastic fragments resulting from the decomposing process are easily carried by air to rivers, lakes, seas, major thoroughfares, cultivations and forests causing considerable damage, ranging from the blocking of plumbing and river drainage systems to the death of animals who choke on plastic fragments found in the environment (ACMINAS, 2011).

According to AMIS (2011) the use of oil in the manufacturing of these products results in serious environmental problems. Usually, this type of product is incorrectly disposed of, causing the problems mentioned above as well as contaminating soils and causing compaction problems in landfill sites.

Retail sector data show that 63 plastic bags per inhabitant/year are consumed in Brazil, that is, approximately 12 billion units a year. In Belo Horizonte, up to 157 million plastic carrier bags per year were distributed by the various retailers in the city (AMIS, 2011).

In general, Brazilian legislation does not establish measures to discourage or prevent some activities which have a negative impact on the environment. However, there has been considerable progress in this field. According to PORTALPBH (2011), Belo Horizonte is the first municipality to restrict the use of plastic bags by establishing law n. 9529, regulated on 27th February 2008, on the substitution of plastic bags for ecological carrier bags.

PORTALPBH (2011) also states that in order to promote a change in consumer behavior in relation to this legislation, the municipality has provided information to the population in relation to the best alternatives to plastic carrier bags. It suggests the use of shopping trolley bags, cardboard boxes, recycled bags and returnable bags. In addition, it also recommends the use of compostable bags which are similar to plastic carrier bags but are made from organic material and are less harmful to the environment, particularly in view of their decomposition rate.

As previously mentioned, compostable, or biodegradable bags are made from organic material, usually maize starch, which decomposes easily. These carrier bags take a maximum of 180 days to decompose, a result of the activity of micro-organisms present in composting environments and landfill sites. Furthermore, its transformation into organic waste means that it can be used as humus during the fertilization process (ACMINAS, 2011).

Compostable carrier bags are usually sold by retailers. The purpose of charging for this product is to discourage the use of disposable bags, even when they are compostable, in order to promote the use of returnable bags which last longer and are not disposed of into the environment in the short-term. Longer-lasting bags, made from a variety of materials such as NWC, cloth and straw are the best alternatives for discouraging disposal.

The purpose of the legislation, therefore, is to make Belo Horizonte consumers understand the needs and benefits for society of reducing the use of plastic carrier bags, particularly given the fact that they are not disposed of adequately. The expectation is that there should be a change in behavior in relation to the use of carrier bags (ACMINAS, 2011).

#### *Experiences of restricting the use of plastic carrier bags*

According to the Minas Gerais State Trade Association (ACMINAS, 2011) some countries and cities have implemented legislation or measures to restrict the use of plastic (polyethylene) bags.

- Ireland - the first country to implement measures against the uncontrolled consumption of bags where a fee has been charged for every plastic bag distributed since 2002.
- Germany and Denmark - compostable bags are sold to consumers in all supermarkets. The use of returnable bags or cardboard boxes is common place.
- South Africa - in 2003 legislation was passed which made the use of plastic bags less than 30 micrometers illegal. The aim was to make plastic carrier bags more expensive, promoting re-use.
- Bangladesh - floods causing victims as a result of the excess amount of plastic bags led the government in 2007 to prohibit the production, sale and possession of polyethylene bags. Heavy fines and imprisonment were put in place as punishments for breaching this law. This measure created business opportunities for street children who can make an income from selling artisanal paper bags.
- China - supermarkets charge for plastic bags. Free distribution was banned in 2008. Previously 60 billion plastic bags were consumed in the country.
- Japan - polyethylene bags are sold and in some cities their use as bin bags is prohibited. This means that they have to be reused or recycled.
- Rwanda - the use of plastic bags was banned in 2005.
- San Francisco - was the first American city, in 2007, to ban plastic bags in pharmacies and supermarkets.

In all these places there was a significant reduction in the use of plastic bags, where the main alternative adopted by people was utilizing re-usable carrier bags. Thus, it could be said that the various laws implemented attained their objective.

The above laws show the importance of substituting plastic bags by ecological bags. Furthermore, they show that carrying out studies on issues relating to people's usage and resistance to using green bags is important. Here we consider the municipality of Belo Horizonte, given the new law banning the distribution of plastic bags by retailers, in force since 2008.

## Methodology

In this study, a positivist and quantitative study was carried out, in accordance to Collis and Hussey (2005). Within this framework, reality is considered to be objective and singular and the researcher does not interfere with what is being analyzed. Impartiality and accuracy is sought through the validity and reliability of the research.

Within this context, the current research can be classified as descriptive as it "analyzes and correlates facts or phenomena (variables) without manipulation. It seeks to discover, with as much accuracy as possible, the frequency of a phenomenon, as well as its relationships and connections with other phenomena" (CERVO, BERVIAN, DA SILVA, 2007, p. 61).

According to Gil (1991), the main aim of descriptive research is to outline the characteristics of a specific population or phenomenon, or to establish relations between variables. This type of research, in line with other exploratory studies, is the main method used by social researchers to analyze a phenomenon in practice. Thus, it is important to highlight that the current study also encompasses explicative approaches, as one of its objectives is to "identify the factors which determine or contribute to the occurrence of phenomena" (GIL, 1999, p. 44).

The research involves a field study. Ruiz (1996, p. 50) argues that "a field study constitutes observing facts as they occur spontaneously, whilst collecting data and recording supposedly significant variables for future analyses". It is important to highlight that

field research is used in order to obtain information and/or knowledge about a particular problem so as to provide a solution, prove a hypothesis or discover new phenomena or new relationships between them (MARCONI, LAKATOS, 2003, p. 186).

Thus, a questionnaire was produced which, according to Lakatos and Marconi (2001, p. 201), "is a data-gathering tool made up of an ordered series of questions which can be answered without the presence of an interviewer". The data-gathering tool is made up of 10 multiple-choice questions which specifically address relevant points in relation to plastic and compostable bags. It also addresses issues related to the new legislation banning the distribution of plastic bags.

A survey was used to collect data. It is defined by Collis and Hussey (2005, p. 70) as a method “involving a sample of subjects taken from a specific population and studied in order to make inferences about this population”. It was decided that interviewees would answer the questionnaires via the internet, that is, via an electronic survey (HAIR JR. et al., 2005).

First, the questionnaire was analyzed and approved by three researchers specializing in the applied social sciences. According to Hair Jr. et al. (2005) and Malhotra (2001), after carrying out an analysis the questionnaire should be pre-tested using a small sample. This pre-test was conducted, no faults were identified and no further suggestions for improving the data-collection tool were made. The questionnaire was then made available on the internet by using the *SurveyMonkey*® system which supplies basic technology for online questionnaires.

The data-gathering exercise occurred between March and April 2012 and the information was statistically analyzed in order to understand this phenomenon during the specified period (HAIR JR. et al., 2005).

This study made use of a non-probabilistic sample. According to Hair Jr. et al. (2005), this involves the selection of elements which are not necessarily statistically representative of the population. That is, not all individuals of a particular population have the same chance of being selected as part of the sample. Thus, it is not possible to generalize results to the target-population.

Convenience sampling was adopted. This occurs when sample elements are used on the basis of being able to provide the necessary information and being willing to participate in the study. Furthermore, emergent sampling techniques were also used, given that the research was made available via social networks and email, and respondents were asked to disseminate it further among their friends and acquaintances (COLLIS, HUSSEY, 2005).

There were a total of 275 responses. The SPSS® (*Statistical Package for the Social Sciences*), version 18.0, and Excel 2010 were used to carry out the necessary statistical analyses.

## Result Analysis and Presentation

275 responses were collected, 34 were disregarded because these respondents were not aware of the Belo Horizonte Municipal Law 9529/2008 establishing the substitution of conventional plastic bags for compostable bags. That is, there were 241 valid responses. Respondents were consumers from different regions of the city of Belo Horizonte.

Below is a breakdown of the profile of respondents:

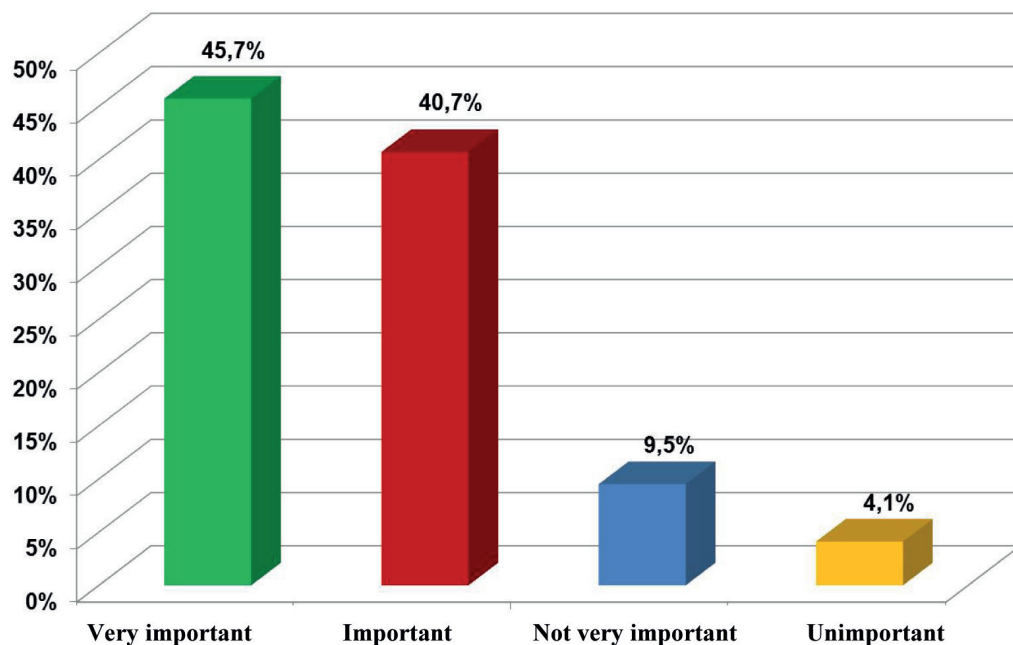
- 71.4% were female.
- 45.6% were between 22 and 30 years of age; 20.3% between 31 and 40; 18.7% 21 or under; and 15.4% over 40 years of age.
- 51% of interviewees were single; 44% married/in a stable relationship; and 5% divorced/separated.



- With regard to education: most respondents (41.1%) had incomplete further education; 31.5% had some sort of secondary education; 13.3% had completed further education; 5.8% had post-graduate degrees; 4.6% had been educated only to primary level; and 3.7% had a masters degree or a Ph.D.
- In relation to household monthly income (in Brazilian Reais) the cohort was divided as follows: 61% had up to R\$ 3,110.00; 22.4% had between R\$ 3,110.01 and R\$ 6,220.00; 14.5% between R\$ 6,220.01 and R\$ 12,440.01; and 2.1% had over R\$12,440.01.
- With regard to the size of the household: 62.2% were made up of 3-5 people; 31.1% up to 2 people; 5.4% between 5 and 10 people; and 1.2% between 10 and 20 people.

In relation to legislation and the use of compostable bags, respondents were initially asked about their perception of the importance of the law banning the use of plastic bags by retailers in Belo Horizonte. Results are shown in Figure 1 below.

**Figure 1 - The importance consumers give to the law on compostable carrier bags in Belo Horizonte**

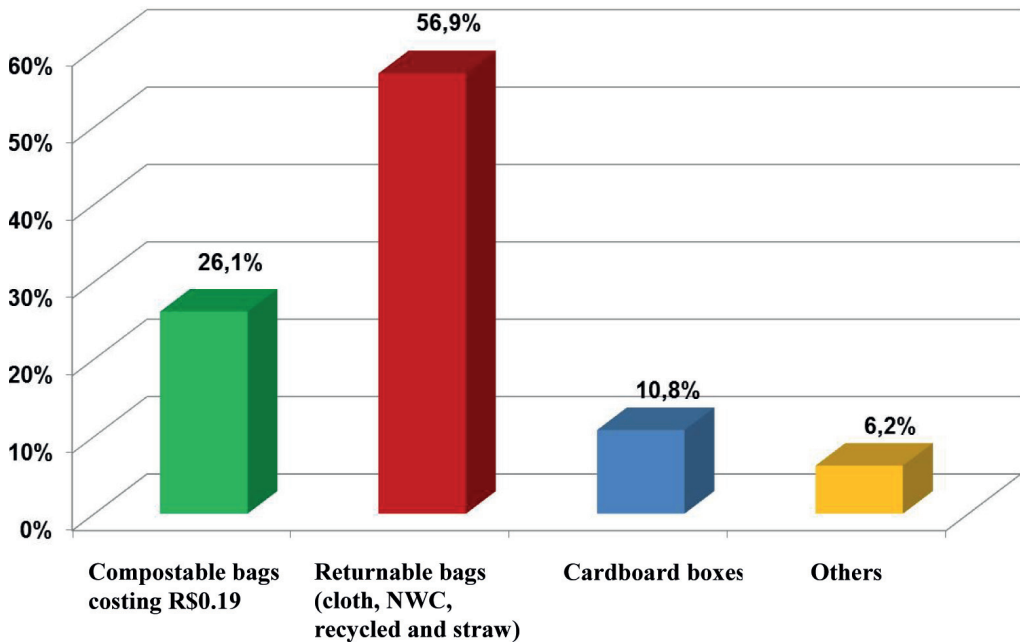


Source: Research data.

Results show that most interviewees (86.4%) think the law is very important or important. It is, therefore, possible to infer that Belo Horizonte (state of Minas Gerais - MG) consumers approved the law on the substitution of conventional carrier bags for compostable bags. Furthermore, only 4.1% of interviewees thought the law was irrelevant.

Research participants also answered questions on what types of carrier bags or other means they most frequently use to transport products purchased in the shops of Belo Horizonte (Figure 2).

**Figure 2 - Alternatives used by consumers to transport purchased goods**



Source: Research data.

Results corroborate with the previous question which pointed to the acceptance of the legislation by this cohort, given that respondents actually sought new ways of transporting goods purchased in Belo Horizonte's shops. Furthermore, almost 74% of interviewees sought other alternatives to compostable bags, which are also usually discarded after one use. Most respondents opted to use returnable bags. In environmental terms, this was considered to be the best option for transporting goods, given that this type of material normally has a long life span and can be used many times.

Another question in the survey asked interviewees about behavior changes promoted by the new legislation. It was observed that the consumers interviewed changed their behavior in relation to transporting their shopping. The main effects of legislation on the choice of the consumers interviewed are shown in Table 1.

**Table 1 - Main changes in consumer behavior**

<b>Behavior change reported by consumers</b>	<b>Percentage</b>
Use of returnable carrier bags (cloth, NWC, recycled and straw)	62%
Buying smaller volumes to make transporting easier	10.4%
Using cardboard boxes provided by retailers	9.4%
Only shopping by car	9.4%
Using a shopping trolley bag	6.3%
Not using shops which do not supply free bags	2.5%

Source: Research data.

Once again it can be observed that the main change in the behavior of respondents was using returnable carrier bags (cloth, NWC, recycled and straw). This was not common-place among respondents before the legislation came in force. However, new issues emerged such as buying a smaller quantity of products resulting in more trips to retailers, the use of vehicles and the demand that retailers provide free compostable bags in order for respondents to continue to shop at their establishments.

According to ACMINAS (2011), the purpose of charging for compostable bags is to make consumers adopt ecologically correct practices, deciding to use returnable, non-disposable carrier bags which have a longer usable life, or use other alternatives which are less harmful to the environment such as re-using cardboard boxes and shopping trolley bags. However, it is also the case that selling carrier bags can be seen as another profit-making opportunity for retailers.

Respondents were also asked if they thought banning the distribution of conventional plastic made them place higher value on ecologically responsible goods. 58.5% of respondents said that they started to value more products which are considered to be green and sought to change their consumer habits so as not to harm the environment.

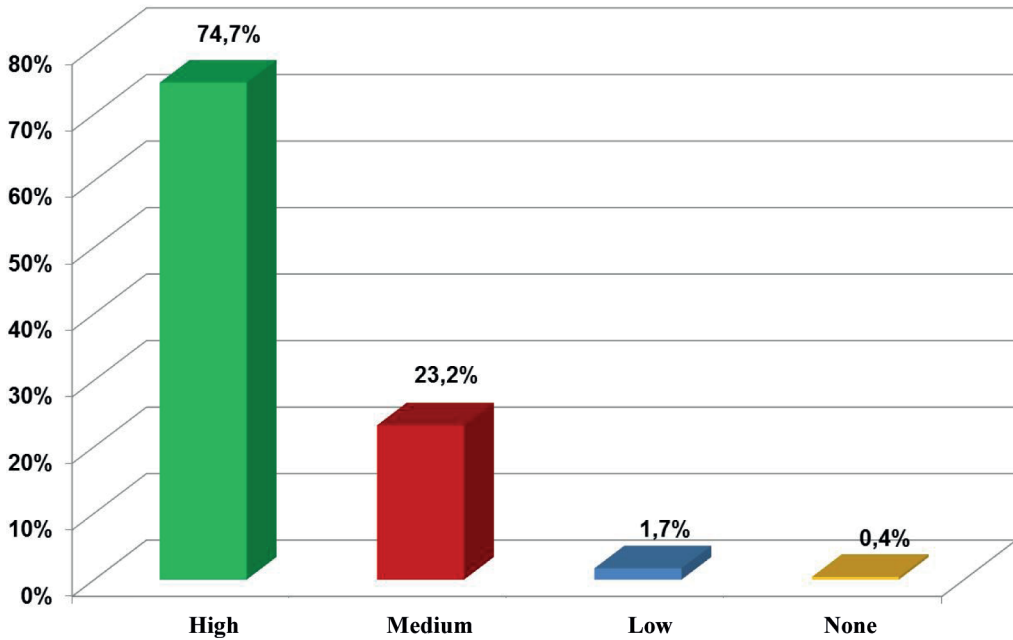
Furthermore, respondents were asked whether they believed that banning the distribution of plastic carrier bags in the shops of Belo Horizonte would make people become more environmentally responsible. Results show that in contrast to answers to the previous question, most respondents (56%) thought that the new legislation would not influence the habits of other consumers. It can therefore be observed that, according to the respondents in this study, it is necessary to promote broader policies in this area and use other means to make the population of this municipality more aware of environmental matters.

Respondents were also asked whether, in theory, they would give preference to a supermarket that did not use traditional carrier bags because of the negative impact this product has on the environment, even if there was no legislation in this regard in Belo Horizonte. Results show that most consumers (58%) would not choose this type of establishment, in contrast to 42% who would.

However, when considering the importance respondents attached to environmental issues, it can be observed that most (74.7%) believe it to be very important. A further

23.2% claim that environmental issues are somewhat important, as can be seen from Figure 3.

Figure 3 - Level of importance attached by consumers to environmental issues



Source: Research data.

Also in relation to perception of environmental issues, respondents were asked which they thought was the main environmental problem at the moment. 32% said that they thought it was global warming; 23.2% water pollution; 21.2% deforestation and 17.4% overconsumption.

Finally, the study sought to ascertain if consumers are willing to reduce their consumption of conventional carrier bags in order to protect the environment. Results were very clear given that most respondents (90.5%) answered this question positively. That is, they were willing to reduce their consumption of plastic bags to avoid harming the environment.

## Final Considerations

The results of the study attained the objectives proposed. The information presented here may contribute towards understanding consumer behavior in Belo Horizonte in relation to environmental issues. This study analyzed the legislation concerning compostable carrier bags in order to establish a pattern of behavior which is less harmful to the environment in relation to the use of disposable plastic carrier bags.

The results of the research point to the fact that consumers in Belo Horizonte are concerned with environmental issues and are willing to change their behavior in view of the introduction of the legislation determining the substitution of conventional plastic bags by compostable carrier bags. Consumers have been using alternative methods such as returnable bags, compostable bags and cardboard boxes.

It is therefore important to highlight that 86.4% of respondents stated that this law is either very important or important. The high acceptance level of this legislation may be due to the fact that there is more information on the negative environmental impacts particular products may have. This result corroborates with a study by Cuperschmid e Tavares (2001) revealing that consumers are more concerned about environmental issues when they are personally affected by them.

Furthermore, results corroborate with the claims of the municipal government of Belo Horizonte (2012). In order to justify the compostable bags legislation it stated that Belo Horizonte consumers have been increasingly concerned with environmental issues. It is important to highlight that for most respondents the new law results in an improvement of the environment.

The study also revealed that after the law was enacted, respondents started to value green products more and change their behavior in order to reduce negative impacts on the environment. It can therefore be concluded that the legislation reached one of its objectives: to influence consumers to reflect on the importance of purchasing products and behaving in a way which has less negative impact on the environment.

It is important to note that according to the Ministry of the Environment (MMA, 2012), there are many environmental problems affecting the planet. However, some are more significant than others, such as global warming, deforestation, the extinction of species, a reduction in water resources, excessive consumption and waste disposal. Most of these issues were mentioned by respondents as factors of environmental concern, showing that they are aware of these problems.

Nevertheless, the fact that most respondents stated that they would not go shopping in places where plastic bags were not distributed if they had not been banned means that despite the fact that environmental concerns affect consumer behavior, they do not seem to be a decisive factor in the decision-making processes of consumers. That is, despite being aware of the problem as previously shown, consumer attitude does not necessarily reflect this awareness.

As this study shows, green consumption is growing and it is a topic that is gaining more importance within organizations which aim to develop goods and services to meet consumer needs. Nevertheless, green consumers do not yet make up a majority of the market.

Results show that consumers who value products which take the environment into account are in a minority. This contradicts Gonzaga's (2005) findings. He states that products developed in line with environmental concerns add value to the brand, improving the image of products and the company. We argue that there is a need to carry out publicity campaigns in the mass media in order to debate the role of consumers in environmental preservation, highlighting how individual acts affect the environment.

Another important finding is that most consumers claimed they had changed their consumer habits due to the new legislation and decided to adopt other measures instead of using conventional carrier bags to transport their shopping. Most respondents stated that they started to value green products more after the law relating to compostable bags was introduced and they also believe that this new law may have a positive effect on the environment. Results highlight the importance of initiatives related to this legislation in order to promote sustainable consumption which does not affect the environment.

It was observed, in this particular case, that consumer awareness of environmental issues was reflected in changes in the usage of plastic carrier bags, which is corroborated by AMIS data (2012). This shows that once the law was introduced, there was a reduction in use amounting to 165 million conventional plastic bags in the city of Belo Horizonte.

Returning to the main objectives of this study, it was found that consumers in Belo Horizonte are willing to change their consumer habits, given that 90% stated that they intended to reduce their consumption of conventional plastic bags to protect the environment.

It is important to point out that the study revealed that compliance with the legislation on the use of conventional carrier bags by retailers was not well monitored. According to PORTALPBH (2012), between April and November 2011, 3,357 checks were conducted and 526 shops received notices in relation to the non-substitution of conventional bags for compostable bags and only four traders were fined. Despite the fact that in general consumers seemed to approve of the law, there needs to be greater commitment by governments so that traders can effectively comply with the law and apply the new legislation.

This research has also contributed to the study of this topic. Its results are a further step towards increasing the knowledge of this subject amongst academics. Furthermore, it can be said that these results allow companies to gain a better understanding of the behavior of their consumers, making it possible to carry out activities in order to satisfy consumer needs.

Finally, it is necessary to highlight the importance of policies relating to the development of legislation and the implementation of measures to protect the environment and prevent its degradation. The example studied in this research shows the importance of new legislation in relation to change, in particular, in relation to consumer behavior associated to habits which can have an impact on the environment. Therefore, it is important to highlight the crucial role governments have as agents who have an impact on environmentally responsible activities.

Green marketing cannot be taken to be just another form of adding value to a product. Its purpose is to engender a positive line of action in the company or entity which promotes it. The aim of companies adopting green marketing strategies should be to effectively plan, produce and dispose of goods and services which have the least possible impact on the environment and not to use it as an instrument for brand differentiation (POLONSKY, 1994; ROBERTS, 1996).

One of the suggestions for future research is to replicate this study in other state

capitals in Brazil which have banned the use of plastic carrier bags such as São Paulo, Aracajú and João Pessoa. It may also be interesting to conduct this research in cities where similar laws have not been passed, so as to compare the behavior of consumers in these circumstances.

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# THE IMPACT OF USING COMPOSTABLE CARRIER BAGS ON CONSUMER BEHAVIOUR IN THE CITY OF BELO HORIZONTE, BRAZIL

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SABRINA C. SANTOS, CAISSA VELOSO E SOUSA, DANILO DE OLIVEIRA SAMPAIO, ANDRÉ FRANCISCO ALCÂNTARA FAGUNDES

**Resumo:** A substituição de sacolas de plástico convencional por sacolas compostáveis tem sido um tema relevante em termos de debate, tanto para a sociedade, de forma geral, como especificamente para a academia. Pioneira na iniciativa, a cidade de Belo Horizonte sancionou a Lei que dispõe da substituição das sacolas de plástico convencional pelas compostáveis. Assim, o objetivo deste estudo é identificar a influência que a utilização das sacolas compostáveis trouxe ao comportamento do consumidor belo-horizontino. Para tanto, desenvolveu-se uma pesquisa de campo quantitativa, tendo como instrumento de coleta de dados o questionário, que foi aplicado através de uma *survey* eletrônica. Como resultado, verificou-se que o uso de sacolas de plástico convencionais traz uma crescente preocupação por parte dos consumidores com relação aos problemas ambientais causados por esse produto. Também foi constatada uma maior conscientização com relação ao uso dessas novas sacolas e o reconhecimento da importância dos produtos verdes, os quais estão ganhando espaço no mercado e na vida do consumidor.

**Palavras-chave:** Sacolas plásticas; Marketing verde; Comportamento do consumidor.

**Abstract:** The replacement of conventional plastic bags for compostable bags have been an important theme in terms of the debate, both for society as a whole and for the academics researches. Pioneer in the initiative, the city of Belo Horizonte has signed legislation that the replacement of conventional plastic bags for compostable, and it is the subject of this research that seeks to identify the influence that the use of compostable bags brought to the consumer behavior of Belo Horizonte's citizens. For this purpose, we developed a quantitative research, with the data collection instrument questionnaire. As a result, it was found that the use of conventional plastic bags provides a growing concern among consumers regarding the environmental problems caused by such products. It was also noted an awareness regarding the use of bags and more importance to green products, which are gaining market share and the consumer.

**Key-words:** Plastic bags; Green marketing; Consumer behavior.

**Resumen:** La sustitución de las bolsas de plástico convencionales para bolsas compostables han sido un tema importante del debate, para la sociedad y para la ciencia. Pionero en la iniciativa, la ciudad de Belo Horizonte ha firmado la legislación que la sustitución de bolsas de plástico convencionales por las compostables, siendo este el tema de esta investigación que busca identificar la influencia que el uso de bolsas compostables en lo comportamiento de los consumidores de Belo Horizonte. Para esto, ha sido desarrollado un trabajo cuantitativo, con el cuestionario de datos de instrumento de recolección. Como resultado, se encontró que el uso de bolsas de plástico convencionales proporciona una preocupación creciente entre los consumidores en relación con los problemas ambientales causados por estos productos. También se observó una toma de conciencia sobre el uso de bolsas y más importancia a los productos ecológicos, que están ganando cuota de mercado y el consumidor.

**Palabra clave:** Las bolsas de plástico; Marketing verde; El comportamiento del consumidor.

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