REUNIR:
Magazine of Administration, Accounting Sciences and Sustainability
www.reunir.revistas.ufcg.edu.br

ISSN: 2237-3667

ORIGINAL ARTICLE: Submitted in: 29.01.2021. Validated on: 26.11.2022. Apt for publication in: 28.02.2023. Responsible Organization: UFCG.

Feasibility of maintaining the sustainable characteristics of garbage bags based on the perception of its customers

Viabilidade de manutenção das características sustentáveis dos sacos de lixo a partir da percepção dos seus clientes

Factibilidad de mantener las características sustentables de las bolsas de basura en base a la percepción de sus clientes

Ingrid Zanuto de Freitas
State University of Western Paraná
R. Universitária, 1619 – Universitário - Cascavel - PR
Brazil - CEP: 85819-110
https://orcid.org/0000-0001-9274-6544
e-mail: ingrid_zanutodefreitas@hotmail.com

Ana Paula dos Santos
State University of Western Paraná
R. Universitária, 1619 – Universitário - Cascavel - PR
Brazil - CEP: 85819-110
https://orcid.org/0000-0002-6465-5095
e-mail: ana_paula.santos_@hotmail.com

Geysler Rogis Flor Bertolini
State University of Western Paraná
R. Universitária, 1619 – Universitário - Cascavel - PR
Brazil - CEP: 85819-110
http://orcid.org/0000-0001-9424-4089
e-mail: geysler_rogis@yahoo.com.br

Loreni Teresinha Brandalise
State University of Western Paraná
R. Universitária, 1619 – Universitário - Cascavel - PR
Brazil - CEP: 85819-110
https://orcid.org/0000-0003-4359-0787
e-mail: lorenibrandalise@gmail.com

creative commons OPEN ACCESS

KEYWORDS
viability of ecologically correct product; consumer perception; small business.

Abstract: *This research had as objective to verify if there is viability of maintenance of sustainable characteristics of garbage bags manufactured by a small industry from the perception of your customers. It is a bibliographical, research carried out through a case study, with data collected through a questionnaire and treated by relative frequency. It was found that consumers of garbage bags value environmental aspects, however, more than 70% only show interest in buying a garbage bag that is less harmful to the environment if the price is lower than other common garbage bags, or even, nor would I buy this type of product, regardless of its price. It is indicated that the company maintains and implements sustainable characteristics, in the garbage bag and in its other products, that have low cost and bring return under the investment in the short term, without increase in the values of these products.*

PALAVRAS-CHAVE
viabilidade de produto ecologicamente correto; percepção do consumidor; empresa de pequeno porte.

Resumo : Esta pesquisa teve como objetivo verificar se há viabilidade de manutenção das características sustentáveis dos sacos de lixo fabricados por uma indústria de pequeno porte a partir da percepção dos seus clientes. Trata-se de uma pesquisa bibliográfica, realizada por meio de um estudo de caso, com dados coletados por meio de questionário e tratados por frequência relativa. Verificou-se que os consumidores de sacos de lixo valorizam os aspectos ambientais, porém, mais de 70% apenas demonstra interesse em comprar um saco de lixo que agride menos o meio ambiente se o preço estiver abaixo dos outros sacos de lixo comuns, ou ainda, nem compraria este tipo de produto, independente do seu preço. Indica-se que a empresa mantenha e implemente características sustentáveis, no saco de lixo e em seus outros produtos, que tenham baixo custo e tragam retorno sob o investimento no curto prazo, sem aumento nos valores desses produtos.

PALABRAS CLAVE
viabilidad de producto ecológicamente correcto; percepción del consumidor; pequeño negócio.

Resumen: *Esta investigación tuvo como objetivo verificar si existe la viabilidad de mantenimiento de características sostenibles de las bolsas de basura fabricadas por una pequeña industria desde la percepción de sus clientes Se trata de una investigación bibliográfica realizada a través de un estudio de caso, con datos recogidos a través de un cuestionario y tratados por frecuencia relativa. Se encontró que los consumidores de bolsas de basura valoran los aspectos ambientales, sin embargo, más del 70% solo muestra interés en comprar una bolsa de basura que sea menos dañina para el medio ambiente si el precio es menor que otras bolsas de basura comunes, o incluso, tampoco lo haría. comprar este tipo de producto, independientemente de su precio. Se indica que la compañía mantiene e implementa características sostenibles, en la bolsa de basura y en sus otros productos, que tienen un bajo costo y generan un rendimiento bajo inversión a corto plazo, sin aumentar los valores de estos productos.*

Introduction

If traditional business models aimed to create value for the company's shareholders, an innovative approach needs to include sustainability in its operational and strategic perspectives, considering its consumers (Kuchinka, Balazs, Gavriletea, & Djokic, 2018). To meet the expectations and needs of its customers without forgetting the care for the environment, the business sector is adopting social responsibility practices, developing products with lower negative impacts and designing sustainable projects together with society, acting as a key player in addressing these issues (Virakul, 2015; Menezes, Gomes, & Dantas, 2016). This is because sustainable development is a type of progress that meets the economic, social, and environmental needs of society without sacrificing the needs of future generations (Gunasekaran, Jabbour, & Jabbour, 2014).

However, within sustainable development and the current predominant model, where the goal is to formalize sustainability initiatives as a cost-minimizing factor by companies, commonly product demand and price are not addressed within this model, as well as consumer response to the company's environmental performance is often ignored (Halati & He, 2018). Changes in society at both organizational and consumer levels are constant, and depending on the business model, adapting sustainable business practices may not even be recommended (Kuchinka et al., 2018).

Some studies such as that of Vista, Shibao, and Santos (2015), evaluated whether the use of green plastic generates positive results and whether it is a viable sustainable alternative for the company if used in processes in industrial manufacturing, using as research focus the product of a manufacturer of Personal Protective Equipment (PPE), which adopted the strategy of replacing plastic of petrochemical origin by plastic of renewable origin in its production process. The authors concluded that the substitution of raw materials in the product can reduce environmental impacts, however, they report that this was the only aspect of sustainability analyzed, and, furthermore, that a limitation of the study is in relation to the lack of approach to costs, such as possible reductions in production costs of the green product, among others.

Among the various environmental challenges, plastic packaging, due to its significance for the growth of the economy and trade, its various functionalities and the variety of materials they are composed of, are of great representativeness (Landim, Bernardo, Martins, Francisco, Santos, & Melo, 2016). Plastic bags are a comfortable solution for consumers, mainly considering the issue of contributing in time saving, however, they are also a great environmental challenge, mainly considering the short life cycle they have (Ślusarczyk & Kot, 2018). According to Lima (2016), every day, one and a half billion plastic bags are consumed in the world and further, according to Piva and Orikassa (2014) the decomposition of a plastic bag goes from 100 to 300 years. Thus, considering plastic bags and plastic bags as major pollution villains, the search for a sustainable model is happening in NGOs, industries, municipalities and trade, where each entity seeks to defend their personal interests and, in return, are linked to the search for greater sustainability (Piva & Orikassa, 2014).

It is found that studies on plastic bags from the perspective of sustainability have varied objectives, which focus from their impact on the environment (Muthu, Li, Hu, Mok, & Ding, 2012; Alam, Billah, & Yajie, 2018) and their social impact (Braun & Traore, 2015); as well as the impact on animals (Otsyina, Mwangi, Mogoa, Mbuthia, & Ogara, 2018) and the marine ecosystem (Eich, Mildenberger, Laforsch, & Weber, 2015; Green, Boots,

Blockley, Rocha, & Thompson, 2015; Balestri, Menicagli, Vallerini, & Lardicci, 2017); in addition, there are several studies that focus on the determinants of consumer plastic bag use behavior (Jayaraman, Haron, Sung, & Lin, 2011; Matos, 2013; Deus, Afonso, & Afonso, 2014; Sun, Wang, Li, Zhao, & Fan, 2017); consumers' behavior in the face of monetary charges for plastic bags (Jakovcevic, Steg, Mazzeo, Caballero, Franco, Putrino, & Favara, 2014); the determinants of consumers' reusable bag use behavior (Cherrier, 2006); consumers' behavior in the face of impact messages for not using plastic bags (Groot, Abrahamse, & Jones, 2013) and in the face of banning their use (Sharp, Hoj, & Wheeler, 2010); recycling and reuse of plastic bags for other purposes (Queiroz & Garcia, 2010; Altalhi, Kumeria, Santos, & Losic, 2013; Yang & Reddy, 2013), and consumers' perception and preference for trash bags made from recycled material as well as their willingness to pay more for them (Anstine, 2000).

Thus, there is a gap in the research regarding the analysis of the economic feasibility of both the implementation and the maintenance of plastic bags with sustainable characteristics by manufacturers, based on the importance that the consumers of these bags give to such characteristics. Thus, the following question is posed: considering the perception of consumers, is it feasible for a small industry to keep manufacturing garbage bags with sustainable characteristics? This study aims to verify whether there is feasibility of maintaining the sustainable characteristics of garbage bags manufactured by a small-sized industry from the perception of customers. Additionally, it aims to verify if there is viability for the industry to develop other products with these characteristics. To this end, a case study will be conducted in a small industry located in the city of Cascavel-PR.

This research is justified by the fact that, according to Piva and Orikassa (2014), considering plastic bags and plastic bags as major villains of pollution, the search for a sustainable model is happening in NGOs, industries, municipalities and trade, where each entity seeks to defend their personal interests and, in return, are linked to the search for greater sustainability. It is also justified by the fact that there are few studies, as only one with this focus was found, that specifically focus on the analysis of feasibility considering the consumers' perception and their willingness to pay more for the product.

Theoretical elements of research

The term sustainability, although much discussed and addressed in studies, still does not have a single and structured concept, since the literature brings a wide range of concepts related to sustainability and sustainable development (Lindsey, 2011). According to Silveira (2017), the concept of sustainability emerges from that which is sustainable, that is, which has the viability to be carried out for an indeterminate period, and thus, this concept allows to maintain for several generations the human activities without major losses.

Developing the activities of the present without compromising the future has been the focus of sustainability and sustainable development in the business area, and thus, Taticchi (2010) states that sustainable companies seek to integrate the strategy to the market, considering the social and environmental risks, classifying them as a risk to the business, and, due to this vision, they integrate sustainability decisions as part of the planning, marketing, and process management.

According to Bordin and Pasqualotto (2013), any organization today is concerned with its consumer and with sustainable development, regardless of its activity or line of business, and, for this reason, they adhere to socially responsible practices and thus add value to their image. The corporate sector is,

therefore, important in the sense of creating tools that verify the impacts of its actions, enabling changes in faulty processes and investments in actions that gave results, which reflects on the whole society.

One of the major environmental problems today is related to the fact that various materials such as glass, wood and even steel, are being replaced by plastic, which has advantages such as low cost, strength, flexibility, lightness and recyclability, and disadvantages such as the delay for degradation, permeability to light, gas emissions, high energy consumption in its production and dependence on non-renewable natural resource, which makes the business sector and the academic sector seek to develop new ways to minimize damage to the environment (Landim et al., 2016).

Plastic bag waste has become a serious environmental problem in several countries, such as Kenya, where concern is expressed by environmental NGOs, government organizations, the general population, and manufacturing industries. Due to this, some initiatives are being taken, and the main one, due to its relevance, is the "Sustainable Plastic Waste Management Pilot Project in Nairobi" developed by the United Nations Environment Programme (UNEP), which seeks to find a destination for the growing accumulations of waste scattered in African urban centers (UNEP Project Proposal, 2005; Bahri, 2005).

According to Silva (2012), the returnable bag also comes as an initiative, which seeks to solve a serious problem of waste accumulation, however, in his study, he questioned supermarket consumers about the possibility of replacing plastic bags with reusable options, and the results showed the unwillingness of consumers to bear the social cost, which would be mainly the adaptation of their habits.

The studies related to sustainable development in relation to plastic bags encompass the analysis of the environmental, social, and economic impacts of these products; the environmental practices disseminated in relation to the subject; and consumer behavior in relation to these problems. Table 1 shows the articles that were used to compose the theoretical basis of this study, which were found from the search on the Web os Science and Scopus databases, as well as the main variables of analysis found in them. Note, therefore, that some articles fit more than one variable.

Table 1
Variables identified in the articles that comprised the systemic review

Variable	Frequency	Authors
Consumer behavior and intention to use conventional plastic bags	26,31%	Otsyina, Mwangi, Mogoa, Mbuthia and Ogara (2018) Sun, Wang, Li, Zhao and Fan (2017) Deus, Afonso and Afonso (2014) Matos (2013) Jayaraman, Haron, Sung and Lin (2011)
Degradation of biodegradable plastic bags in marine environment and its risks for the ecosystem	21,04%	Balestri, Menicagli, Vallerini and Lardicci (2017) Green, Boots, Blockley, Rocha and Thompson (2015) Eich, Mildenberger, Laforsch and Weber (2015)
Basic characteristics/compositions of plastic bags and the environmental and social risks and impacts of their pollution	15,78%	Alam, Billah and Yajie (2018) Braun and Traore (2015) Muthu, Li, Hu, Mok and Ding (2012)
Plastic Bag Recycling	15,78%	Altalhi, Kumeria, Santos and Losic (2013) Yang and Reddy (2013) Queiroz and Garcia (2010)
Consumer behavior towards plastic bag	10,52%	Jakovcevic, Steg, Mazzeo, Caballero, Franco, Putrino and Favara (2014)

bans/charges		Sharp, Hoj and Wheeler (2010)
Degradation of conventional plastic bags in marine environment and its risks for the ecosystem	10,52%	Eich, Mildenberger, Laforsch and Weber (2015) Green, Boots, Blockley, Rocha and Thompson (2015)
Consumers' behavior and intention to use reusable bags	5,26%	Cherrier (2006)
Consumer willingness to pay more for trash bags made from recycled plastic	5,26%	Anstine (2000)
Consumer behavior towards normative messages for free plastic bags	5,26%	Groot, Abrahamse and Jones (2013)

Source: Prepared by the authors. .

Some studies were conducted focusing on the impacts generated by plastic bags and sustainable practices in relation to the subject, and, even being within the precepts of sustainable development, they are not compatible with the objectives of this study.Therefore, it will be based on articles that analyzed the behavior and perception of consumers regarding the use of plastic bags and their sustainable characteristics.

Thus, one can highlight the study by Sun et al. (2017), in which the determinants of plastic bag usage behavior among 392 consumers in China were examined with the application of questionnaires. It was concluded that the empirical results indicate that consumer attitude toward plastic bag use, subjective norm, perceived behavioral control, and convenience are statistically significant and positively related to the intention to use plastic bags, and that meanwhile, environmental concern and ethical belief have significant but negative effects on consumers' attitude and intention to use plastic bags.

In the study by Matos (2013), the aim was to obtain further insights into the consumption behavior of plastic bags, with the intention of subsidizing the development of public policies and environmental actions related to behavior change. To this end, a sample with two focus groups was used with 12 interviews and questionnaires to 226 people from the population of Belo Horizonte. As results, 40% of the interviewees stated that they had never or rarely stopped using plastic bags, another 40% stated that they had stopped using them sometimes, and only 20% stated that they had stopped using them often or always. The author concluded that perhaps the fact that it is a habit that involves several routine actions, such as the ease of going to the supermarket or other commercial establishment and not having to carry bags or carts in advance, as well as not having to count on the establishment having ecological alternatives, is an obstacle to behavioral change.

The research by Jayaraman et al. (2011) sought to investigate the use of plastic bags to separate/package hot edible items by food vendors in Malaysia, with questionnaires to 96 respondents. It was concluded that over 62% of consumers purchase hot edible items in plastic bags on a daily or weekly basis due to their cost-effectiveness and storage convenience, and that they are not influenced by public campaigns against the use of plastic bags. On the other hand, it was found that consumers believe that the environmental and health risks of using plastic bags will only have impacts in the future.

Anstine's (2000) research investigated consumers' willingness to pay extra for trash bags made from recycled plastic. The author collected data from 35 stores in suburban New Jersey during the spring of 1997 through 194 observations. It was concluded that consumers of kitchen trash bags are not willing to pay more for bags made with recycled plastic.

The research by Otsyina, Mwangi, Mogoa, Mbuthia and Ogara (2018), aimed to assess the knowledge, attitudes and practices of people in Nairobi and Kajiado counties in Kenya on the use, disposal and effect of plastic waste on sheep and goats. To do this, a semi-structured questionnaire was applied to collect data from 384 respondents in four communities in the two counties. They concluded that the respondents were aware that indiscriminate disposal of plastic bags could result in the death of the animals from which they derive their livelihoods, but still continued with the practice.

The authors Deus, Afonso and Afonso (2014) aimed to investigate how environmental awareness, attitude towards plastic bags and intention to use this product are related. To this end, a sample consisting of 279 undergraduate students of the Faculdade de Tecnologia do Comércio de Belo Horizonte was collected with the application of questionnaires. They concluded that the results found lead to the deduction that environmental awareness may be distant from behavioral intention, which is affected only by attitude.

In their work, the authors Jakovcevic, Steg, Mazzeo, Caballero, Franco, Putrino, and Favara (2014) conducted a study aiming to test the effects of a charge for plastic bags implemented in the city of Buenos Aires, Argentina. In the first part of the study, the authors observed 457 consumers in six supermarkets, and in the second part, they delivered brief questionnaires about plastic bag use administered in seven supermarkets, of which 189 consumers participated. They concluded that a monetary fee per plastic bag was effective in increasing the use of plastic bags among Argentinean consumers, who, even two months after the policy was introduced, still maintained this habit. However, consumers stated that support for the policies and the behavior of own bag use was mainly intrinsic, due to environmental concerns.

Among the several aspects analyzed in the studies, it can be verified that the approach of plastic bags in the perspective of sustainability becomes more and more important and more discussed, especially in relation to the impacts on environmental and social issues. However, it is verified that the analysis of consumer behavior and perception focusing not only on the environmental and social aspect, but also on the economic one, such as the feasibility of the company that manufactures the plastic bags to create a product with ecological characteristics, using recycled material for manufacturing, or even in the feasibility of maintaining an existing product, if it already contains these characteristics.

As Virakul (2015) states, the business sector is adopting socially responsible practices, acting as a key player in addressing these issues due in large part to the resources and power it holds. Thus, it is important to link this important aspect, both environmentally and socially and economically, which are the plastics, also to the business sector, which in this case are those responsible for their manufacture and/or marketing.

Methodological elements of the research

The methodology of the study was composed of literature search, on the behavior and perception of consumers in relation to plastic bags from the perspective of sustainability; exploratory and a case study with survey, with application of questionnaires to potential consumers of the product of a plastic industry located in the city of Cascavel-PR. According to Pizzani, Silva, Bello and Hayashi (2012), the bibliographic research is the literature review that guides the scientific work, and can be conducted in books, journals, newspaper articles, websites among other sources, and aims to provide knowledge about the area addressed and offer subsidies for the

discussion of the scientific work.

The exploratory research, according to Raupp and Beuren (2006), is used to get to know the theme to be addressed in greater depth, making it clearer and building important questions for conducting the research. For Martins (2008), the case study is a deep study of a delimited object, and makes it possible to enter into a social reality, which is not fully achieved by a sample survey and exclusively quantitative evaluation.

To gather information about the company that was the focus of this study, the owner was interviewed, and questions were asked about how long it has been in the market, the products it manufactures, the regions in which it operates, the number of employees, and whether there are any sustainable practices or products. Thus, it was obtained that the company was founded on 02/01/2013; has a staff of 30 employees; manufactures products such as garbage bags, freezer bags, plastic film and aluminum foil; and that through a partner distributor, sells its products in several establishments in several cities in southern Brazil. Since it is an industry and only passes on its products to a distributor, it has neither direct clients nor end consumers.

The owner of the company reported that among the products manufactured, the garbage bag is the only product that carries the characteristic of environmentally friendly, demonstrated in its packaging, and that it is made with 100% recycled material, and that this production occurred due to the company's interest in working with a differentiated product. Even with the difficulty of using 100% recycled material in the manufacture of the product, due to the possibility, in the long run, of machine wear (mainly due to impurities present in this type of material, such as sand, earth, and wood), the company keeps it with this characteristic, because it is the only environmental practice in the company. For these reasons, the product elected for this study was the garbage bag produced by the industry.

The industry has neither direct consumers nor end consumers and thus could not pass an estimate of the population of consumers of its products, therefore, for the application of the questionnaire it was used a non-probabilistic sample selected by convenience, considering the finite population of Cascavel-PR, the company's headquarters city and in which its products are also distributed, being this the population of potential consumers of these products. The data of the population of Cascavel-PR were taken from the IBGE, 2010 census, which lists 286,205 inhabitants.

The questionnaire was applied during the months of December 2018 and January 2019, for the largest possible number of respondents, through an online Google Docs form, and had the indication of specific targeting to the consumers of this product, being sent through emails and social networks and reaching the number of 117 responses. The object of study in the questionnaire was delimited to garbage bags, seeking differentiation from the use of plastic bags in supermarkets.

The questionnaire was adapted from Bertolini (2009), who elaborated it in his "Model for identifying the volume of investments in the manufacture of environmentally friendly products", and also addressed questions adapted from studies raised in this research such as that of Sun, Wang, Li, Zhao and Fan (2017) and Deus, Afonso and Afonso (2014), about the concern and environmental awareness in general and about the use, in addition to garbage bags, of common plastic bags and the perception of their consumption; and Anstine's (2000) study on the use of trash bags and willingness to pay extra for trash bags made from recycled plastic.

The first part addressed socioeconomic aspects, the profile of garbage bag use, including purchase frequency, and environmental awareness and concern regarding the use of plastic bags. The second

part sought to know the general environmental awareness and concern and the importance that customers attribute to environmental practices and characteristics when choosing a product. Finally, the third part verified the customer's intention in relation to price, considering the consumption of garbage bags, questioning the preference between a product that maintains environmental aspects, and how much they would be willing to pay more for this product, and a product that does not demonstrate such characteristics.

With the data analysis, through relative frequency, it was possible to indicate which are the most feasible actions to be maintained or developed by the company that is the object of this study.

Presentation and discussion of results

Of the total respondents, 76 (65%) are female and only 41 (35%) are male. As for the age of the respondents, 41% are between 25 and 34 years old. It is also noted that 77.8% of the respondents are up to 34 years old.

As for the respondents' level of education, it is noted that almost half (47.8%) have a graduate level of education, and another large part (41.9%) have even a college education. Thus, it can be seen that these trash bag consumers are mainly people who have an education level from higher education upwards (89.7%).

In relation to the respondents' monthly family income, most of them have an income between one and five minimum wages (50.4%), and 29.9% have an income between five and ten minimum wages. Thus, it is noted that 80.3% of these consumers have a monthly income between one and ten minimum wages. Of these respondents, 86 (73.5%) work full time and only 16 (13.7%) are unemployed.

Regarding the city where they live, of the 117 respondents, 99 live in Cascavel, Paraná. The rest of the consumers are from other cities and states, because the questionnaire was disseminated through social networks.

The questionnaire was also asked about the monthly frequency with which these consumers buy garbage bags, and the results are shown in Table 2.

Table 2
Monthly frequency with which respondents buy garbage bags (ten-pack)

Garbage Bag Consumption	Frequency	%
1 product per month	31	26,5
2 products per month	17	14,5
3 products per month	4	3,4
4 or more products per month	7	6
1 product every two month	58	49,6

Source: Prepared by the authors.

Table 2 shows that 49.6% of the respondents buy 1 package of garbage bags every two months, which shows a low consumption of this product, and 26.5% buy 1 package of garbage bags per month. When asked whether they more often use garbage bags or regular plastic bags for garbage, 98 (83.8%) consumers responded that they use the regular plastic bags, which is in line with the answers given in the previous question; 60 (51.3%) respondents stated that the greater use of regular plastic bags instead of garbage bags is due to their easy availability in places like supermarkets, 32 (27.4%) said it is because they are free, and 25 (21.4%) said it is due to force of habit.

When asked whether they have ever used any environmentally friendly garbage bag or plastic bag (a), 61 (52.1%) respondents said yes, 36 (30.8%) said they could not remember, and only 20 (17.1%) said they had never used it. When asked if in their opinion, the consumption of plastic bags and plastic carrier bags is of great representation in society, the vast majority (87.2%) said yes, and only 7.7% said no, and 5.1% said it is indifferent. In line with the answers to the two previous questions, when asked if in their opinion, plastic bags and plastic carrier bags are a major environmental problem, the vast majority (85.5%) said yes,

and only 7.7% said no, and 6.8% said it is indifferent.

Therefore, it can be seen that the potential audience of consumers of the company's garbage bags is formed by people mainly of the female gender, up to 34 years old, earning between one and five minimum wages, with most of them having a level of education from higher education to above. Most of the respondents work full time, live in Cascavel-PR, buy 1 package of garbage bag every two months or 1 package of garbage bag per month, as most of them use the common plastic bags to pack the garbage due, mainly, to the easy availability of these in supermarkets. However, it can be noticed that most consumers have already used some kind of garbage bag or ecologically correct plastic bag, think that the consumption of these is of great representativeness in society and that this is a big environmental problem.

Next, we checked the answers to the questions that made up the second part of the questionnaire, which had the purpose of knowing the general environmental awareness and concern of these consumers and the importance they attach to environmental practices and characteristics when choosing a product. The results were arranged in Table 3, considering that the levels go from 1 - I totally disagree to 5 - I totally agree.

Table 3
Analysis of the results of the second part of the questionnaire

Construct	Affirmative	Levels chosen				
		1	2	3	4	5
Environmental Awareness and Concern	The catastrophes that occur in nature are largely as a result of man's interference.	1,7%	1,7%	8,5%	33,3%	54,7%
	Man is exploiting the environment too much.	0,9%	0,9%	9,4%	32,5%	56,4%
	I am willing to reduce my consumption to protect the environment.	1,7%	0	25,6 %	26,5%	46,2%
	I am willing to consume environmentally friendly products, such as those made from recycled material, as a way to decrease the amount of resources extracted from the planet.	0	0,9%	15,4 %	25,6%	58,1%
Choice of products	When it comes to shopping, I value the manufacturer that has environmental actions.	8,5%	9,4%	40,2 %	16,2%	25,6%
	When it comes to shopping, I value products made from recycled material.	7,7%	9,4%	37,6 %	21,4%	23,9%
	When it comes to shopping, I value products that can be recycled.	6,8%	9,4%	30,8 %	22,2%	30,8%
	When it comes to shopping, I value products with environmental seals.	11,1 %	15,4 %	34,2 %	15,4%	23,9%
	When it comes to shopping, I value products that are manufactured by ISO 14.0001-certified companies.	19,7 %	14,5 %	41,9 %	13,7%	10,3%
	When it comes to shopping, I value products that consume less energy/water.	12,8 %	11,1 %	28,2 %	20,5%	27,4%

Source: Prepared by the authors**.**

According to Table 3, the statements highlighted in gray are the statements in which there was a high concentration of respondents - more than 50% - who marked the option "partially agree" or "totally agree" on the Likert scale. Thus, it can be seen that in the first construct all statements are highlighted in gray, which represents great environmental awareness and concern of these consumers. However, in the second construct, only one statement is highlighted in gray, which shows that when choosing a product, the only thing that is most valued by more than 50% of respondents is the fact that the product can be recycled.

Therefore, the results show that the sustainable actions to be maintained or applied by the company should be related to the aspect

presented in the questionnaire, which refers to products that can be recycled, since at the time of purchase, this was the aspect that consumers of garbage bags showed to be most valued.

It is noteworthy, however, that even if the percentage of consumers who marked the options "partially agree" or "totally agree" in the question which stated the appreciation of products made with recycled material when shopping did not reach 50%, it was 45.3%. Adding to this, we had the result of 83.7% of consumers who marked these options in the statement in which they demonstrated awareness and environmental concern in the fact that they are willing to consume environmentally friendly products, such as those made with recycled material. Thus, the company's actions in this direction can also be welcome.

After analyzing the socioeconomic aspects, the profile of garbage bag usage, the environmental awareness and concern regarding the use of plastic bags, the general environmental awareness and concern, and the importance attributed to environmental practices and characteristics when choosing a product, the third part of the questionnaire verified the consumers' intention of garbage bags in relation to price, questioning the preference between a product that maintains environmental aspects and how much they would be willing to pay more for this product, instead of using a product without such characteristics.

To verify whether respondents prefer a garbage bag that maintains sustainable aspects such as being made with recycled material, having an environmental seal, or maintaining other ecologically correct characteristics, the following alternatives were presented in the questionnaire: 1) I do not buy this product regardless of its price; 2) I buy, only if this product is priced below its similar ones (even if these similar ones do not have sustainable aspects; 3) I buy, if this product is in the same price as its similar ones (even if these similar ones do not have sustainable aspects; 4) I buy this product, even if it is priced higher than its similar ones; 5) I buy this product regardless of its price.

Considering the garbage bags made of recycled material, that 41% of the respondents would choose if the price was similar to the other garbage bags that are not made of recycled material; 18.8% would choose only if the price was lower than the other garbage bags that are not made of recycled material, and, still 10.3% would not buy this product regardless of its price.

Regarding the garbage bags with environmental seal, 42.7% would choose it if the price was similar to the other garbage bags that do not have an environmental seal; 15.4% would choose it only if the price was lower than the other garbage bags that do not have an environmental seal, and 15.4% would not buy this product regardless of its price.

Considering the garbage bags that maintain other environmentally correct characteristics, the results showed that 44.4% would choose them if the price was similar to the other garbage bags that do not have these characteristics; 12.8% would choose them only if the price was lower than the other garbage bags, and 17.1% would not buy this product regardless of its price. Thus, it can be seen that, in general, few would pay more for garbage bags made of recycled material (20.5%); for garbage bags with an environmental seal (19.7%); and for garbage bags with other environmentally friendly features (19.7%).

When checking how much the respondents would be willing to pay more for garbage bags made from recycled material, 45.3% stated that they would not pay more for this product. Of the others, 33.3% stated that they would pay 5% more. As for the garbage bags with environmental labels, 48.7% said they would not pay more for this product, and 28.2% said they would pay 5% more. As for the garbage

bags with other ecologically correct characteristics, 46.2% said they would not pay more for this product, and 33.3% said they would pay 5% more.

Thus, it can be seen that more than 70% of the potential public that uses the company's garbage bags would not buy garbage bags made of recycled material, with an environmental seal or with other ecologically correct characteristics, or would buy them only if their price were lower or similar to the competitors'. In the same direction, it can be seen that almost half of this public would not pay extra for garbage bags made with recycled material, with environmental seal or with other ecologically correct characteristics. Therefore, increasing the price of the product would not be appropriate for the company.

It is possible to verify that although most consumers have shown awareness and concern about environmental problems when asked about man's interference in nature and about excessive consumption; when asked about their attitudes when buying products, most of them did not demonstrate to put these concerns into practice.

Considering also that most respondents have already used some kind of garbage bag or environmentally correct plastic bag, and have shown concern about the consumption of these bags and bags and the environmental problems generated by them, one can see that the environmental aspect is important for the customer profile or potential customer who uses the garbage bags of the company that is the focus of this study.

However, if we consider that when asked about the willingness to pay more for garbage bags that are less harmful to the environment the majority of respondents demonstrated that they would not pay more for these products, and, furthermore, that they would only buy them if the price was below that of other common garbage bags or not at all, it is verified that it is not prudent to make large investments to make or maintain ecologically correct the garbage bag and even other products of the company, because if these investments result in the need to increase the price, the consumption of these products will hardly increase, having chances even to decrease.

In the case of the garbage bag, which is already manufactured with 100% recycled material, one suggestion is that the company should keep this characteristic. In addition to the fact that more than half of the consumers have demonstrated that, when shopping, they value products that can be recycled, it is also noteworthy that 45.3% of the consumers chose the options "partially agree" or "totally agree" in the question which stated that they value, when shopping, products made with recycled material.

Adding to this, we had the result of 83.7% of consumers who marked these options in the statement in which they demonstrated awareness and environmental concern in the fact that they are willing to consume environmentally friendly products, such as those made with recycled material. It was also verified that the short-term return on this investment is considerable, as the costs of recycled material and virgin material, per kilo, were calculated for the production of the garbage bag, and the cost per kilo of recycled material is more than 50% cheaper, since the same amount is used regardless of the material chosen.

Thus, although, as reported by the company, it is difficult to use 100% recycled material in the manufacture of the product, due to the possibility of wear of the machine (mainly due to impurities present in this type of material, such as sand, earth, and wood), it was verified with the company itself that this possibility of shortening the life of the equipment is 20% and happens in the long term.

It is worth mentioning the fact that the company's garbage bag has in its packaging the recycling symbol, because it is made of 100% recycled material, and the statement "environmentally friendly". It was verified that, in order to claim "ecologically correct", as

the raw material of production is already recycled material, the product would need only one change, which is the environmental certification (since it does not have one).

Therefore, some research was done and only one environmental certification seal was found in Brazil that covers the garbage bags and the characteristics of the company's product, and the certifier was willing to provide a budget estimate, which was R$ 3,000.00 at the beginning to obtain the certification, and, after that, around R$ 6,000.00 per year to maintain the certification. Therefore, it can be observed in the questionnaire applied to potential consumers of the garbage bags of this company, that when asked about the appreciation when purchasing products with environmental seals, only 39.3% marked the options "partially agree" or "totally agree". Thus, it would not be prudent for the company to make such an investment.

When asked if plastic bags and plastic bags are a major environmental problem, the vast majority of consumers answered yes, but when asked about their willingness to pay more for plastic garbage bags that are less harmful to the environment, most only show interest in buying if the price is below that of other common garbage bags, or still, a large part would not even buy this type of product, regardless of its price.

These results refer to the research of Deus, Afonso, and Afonso (2014), who, analyzing 279 students in Belo Horizonte, concluded that the fact that the consumer is aware and concerned about the environment, does not lead him to be fully involved to the point of affecting his intention to use non-recyclable plastic bags; in the research of Sun, Wang, Li, Zhao, and Fan (2017), who, analyzing 392 consumers in China, reported that convenience is even one of the most impactful factors on the intention to use plastic bags and that environmental concern has negative effects on this intention; and also in the research of Otsyina, Mwangi, Mogoa, Mbuthia, and Ogara (2018), who, analyzing 384 consumers in Kenya, concluded that they were aware that the disposal of plastic bags could result in the death of the animals from which they derive their livelihoods, yet continued with the practice.

Just as the results of this study showed that most consumers more often use regular plastic bags for garbage instead of the plastic garbage bag, due to the easy availability in places like supermarkets, Matos (2013), analyzing consumers in Belo Horizonte, concluded that routine actions, learned and developed over a long period of time, such as going to the supermarket, make it very difficult to abandon the use of these bags.

Matos (2013) also says that not using plastic bags for household garbage and having to buy other products for this purpose, is among the behaviors that are difficult to change, which refers to the result of this research in which most respondents buy only 1 garbage bag every two months.

One can see the similarity of this study with the only study surveyed that focused on feasibility analysis considering consumers' perception and their willingness to pay extra for the product. Anstine (2000), who examined consumers' willingness to pay for attributes of kitchen trash bags, especially for recycled content, collecting data from 35 stores in the United States, found that consumers are not willing to pay more for trash bags made with recycled plastic, and, further, that they pay less.

He also found that consumers pay less for bags that have some type of environmental labeling. These results are in line with the present research, when the results showed that most consumers would only buy garbage bags made of recycled material or that have an environmental label if the price is similar to other garbage bags that are not made of recycled material and that do not have environmental certification and thus would not pay more for these products.

Anstine (2000) also concluded that the

reason consumers are not willing to pay more for trash bags made of recycled material may be because most people claim to be concerned about the environment, but when they can, they do not practice what they preach, and also because, in this case, they do not directly receive the benefits. This conclusion is also in line with this research, when consumers were asked about the value, when shopping, of products that consume less energy/water, a considerable amount of respondents (47.9%) responded that they partially or totally agree.

Final considerations

Based on a thorough literature search, it was possible to verify that research on plastic bags from the perspective of sustainability has varied focuses, covering their environmental and social impact, and their impact on animals and the marine ecosystem. There are also studies that focus on the determinants of the behavior of plastic bag use by consumers, their behavior when facing monetary charges for plastic bags, the determinants of the behavior of reusable bags use by consumers, and the behavior of consumers when facing impact messages for not using plastic bags and when facing a ban on their use.

In addition, we verified the existence of studies on recycling and reuse of plastic bags for other purposes and on consumers' perception and preference for garbage bags made of recycled material, as well as their willingness to pay more for them.

Thus, a questionnaire was applied to potential customers of the company under study in order to know their profile, thus being able to have a clear idea of the audience that possibly uses or may use the products of this company, as well as to know the general environmental awareness and concern and the importance that customers attach to environmental practices and characteristics when choosing a product, and what the intention of these customers is to seek environmentally friendly products and to pay more for them, considering the consumption of trash bags.

It can be verified that the possible consumer public of the garbage bags of the company under study is formed by people, mainly, of the female gender, up to 34 years old, who earn between one and five minimum wages, and most of them have a higher education level.

Most of the respondents work full time, live in Cascavel-PR, buy one bag of garbage every month or every two months, because most of them use plastic bags for garbage, mainly due to the easy availability of these bags in places like supermarkets. However, it can be seen that the majority of consumers have already used an environmentally correct garbage bag or plastic bag, think that the consumption of these bags or plastic bags is of great representation in society and that this is a major environmental problem.

This audience of respondents demonstrated that they value environmental aspects, especially those that refer to products that can be recycled and products manufactured with recycled material, however, most respondents only show interest in buying a garbage bag that is less harmful to the environment if the price is lower than other common garbage bags, or yet, a large part would not even buy this type of product, regardless of its price.

Thus, it is recommended that the company maintains and implements sustainable characteristics, in the garbage bag and in its other products, that have low cost and bring return on investment in the short term, without increasing the values of these products. Thus, it is feasible, in the case of the company's garbage bag, which is already made of 100% recycled material, that the company maintains this feature, because it enables a reduction in the cost of raw materials, thus allowing the

company to maintain this feature without having to increase the price of the product.

The theoretical contribution of this study lies in developing an analysis of the feasibility of both the implementation and the maintenance of plastic bags with sustainable characteristics by the manufacturers, based on the importance that the consumers of these bags give to such characteristics.

This study contributes both to the company that is the focus of the study and to other companies that have a public or potential public of consumers with a profile similar to that of the research. For future studies, it is pointed out the need to focus in detail on the financial aspects that involve the implementation and/or maintenance of sustainable characteristics in products.

References

Alam, O., Billah, M., & Yajie, D. (2018). Characteristics of plastic bags and their potential environmental hazards. Resources Conservation And Recycling, 132(1), 121-129.

Altalhi, T., Kumeria, T., Santos, A., & Losic, D. (2013). Synthesis of well-organised carbon nanotube membranes from non-degradable plastic bags with tuneable molecular transport: Towards nanotechnological recycling. Carbon, 63, 423-433.

Anstine, J. (2000). Consumers' willingness to pay for recycled content in plastic kitchen garbage bags: a hedonic price approach. Applied Economics Letters, 7(1), 35-39.

Bahri, G. (2005). Sustainable management of plastic bag wast: the case of Nairobi, Kenya. IIIEEE, Lund University.

Balestri, E., Menicagli, V., Vallerini, F., & Lardicci, C. (2017). Biodegradable plastic bags on the seafloor: A future threat for seagrass meadows?. Science of The Total Environment, 605, 755-763.

Bertolini, G. R. F. (2009). Modelo para a identificação do volume de investimentos na fabricação de produtos ecologicamente corretos. Tese de doutorado, Programa de Pós-Graduação em Engenharia de Produção, Universidade Federal de Santa Catarina, Florianópolis, SC, Brasil.

Bordin, D. P., & Pasqualotto, N. (2013). A importância da Responsabilidade Social Empresarial para a sustentabilidade. EBSCOhost. Capital Científico, 11(2), 1–12.

Braun, Y. A., & Traore, A. S. (2015). Plastic bags, Pollution, and identity: Women and the gendering of globalization and environmental Responsibility in Mali. Gender & Society, 29(6), 863-887.

Cherrier, H. (2006). Consumer identity and moral obligations in non-plastic bag consumption: a dialectical perspective. International Journal of Consumer Studies, 30(5), 515-523.

Deus, E. G. S. Q., Afonso, B. P. D., & Afonso, T. (2014). Consciência ambiental, atitudes e intenção de uso das sacolas plásticas não-recicláveis. Revista de Gestão Ambiental e Sustentabilidade - GeAS, 3(1), 71-87.

Eich, A., Mildenberger, T., Laforsch, C., & Weber, M. (2015). Biofilm and diatom succession on polyethylene (PE) and biodegradable plastic bags in two marine habitats: early signs of degradation in the pelagic and benthic zone?. PloS one, 10(9), e0137201.

Green, D. S., Boots, B., Blockley, D. J., Rocha, C., & Thompson, R. (2015). Impacts of discarded plastic bags on marine assemblages and ecosystem functioning. Environmental science & technology, 49(9), 5380-5389.

Groot, J. I., Abrahamse, W., & Jones, K. (2013). Persuasive normative messages: The influence of injunctive and personal norms on using free plastic bags. Sustainability, 5(5), 1829-1844.

Gunasekaran, A., Jabbour, C. J. C., & Jabbour, A. B. L. S. (2014). Managing organizations for sustainable development in emerging countries: an introduction. International Journal of Sustainable Development & World Ecology, 21(3), 195-197.

Halati, A., & He, Y. (2018). Intersection of

economic and environmental goals of sustainable development initiatives. Journal of Cleaner Production, 189, 813-829.

IBGE, Censo de 2010. Disponível em: <https://cidades.ibge.gov.br/brasil/pr/cascavel/panorama>. Acesso: 20 de novembro de 2018.

Jakovcevic, A., Steg, L., Mazzeo, N., Caballero, R., Franco, P., Putrino, N., & Favara, J. (2014). Charges for plastic bags: Motivational and behavioral effects. Journal of Environmental Psychology, 40, 372-380.

Jayaraman, K., Haron, H., Sung, G. B., & Lin, S. K. (2011). Consumer reflections on the usage of plastic bags to parcel hot edible items: an empirical study in Malaysia. Journal of Cleaner Production, 19(13), 1527-1535.

Kuchinka, D. G. J., Balazs, S., Gavriletea, M. D., & Djokic, B. B. (2018). Consumer Attitudes toward Sustainable Development and Risk to Brand Loyalty. Sustainability, 10(4), 997.

Landim, A. P. M., Bernardo, C. O., Martins, I. B. A., Francisco, M. R., Santos, M. B., & Melo, N. R. (2016). Sustentabilidade quanto às embalagens de alimentos no Brasil. Polímeros, 26(spe), 82-92. Epub 19 de janeiro de 2016.https://dx.doi.org/10.1590/0104-1428.1897

Lima, P. (2016). Sacola plástica é uma das maiores vilãs do meio ambiente. Agência Senado. Retrieved from https://www12.senado.leg.br/noticias.

Lindsey, T. C. (2011). Sustainable principles: common values for achieving sustainability. Journal Cleaner Production, 19(5), p. 561-65, 2011.

Martins, G. A. (2008). Estudo de caso: uma reflexão sobre a aplicabilidade em pesquisa no Brasil. Revista de Contabilidade e Organizações, 2(2), 8-18.

Matos, E. B. (2013). Comportamento e Meio Ambiente-Um Estudo Comportamental da Intenção de Não Uso das Sacolinhas de Plástico. REGE Revista de Gestão, 20(2), 217-232.

Menezes, U. M., Gomes, A. F., & Dantas M. Z. (2016). Sustentabilidade e seus Benefícios: Práticas e Ações Sustentáveis Desenvolvidas em Empresas do Distrito Industrial dos Imborés. Vitória da Conquista: SEMAD XVIII. 3(1).

Muthu, S. S., Li, Y., Hu, J. Y., Mok, P. Y., & Ding, X. (2012). Eco-Impact of Plastic and Paper Shopping Bags. Journal of Engineered Fabrics & Fibers (JEFF), 7(1).

Otsyina, H. R., Mwangi, J. N., Mogoa, E. G. M., Mbuthia, P. G., & Ogara, W. O. (2018). Knowledge, attitude, and practices on usage, disposal, and effect of plastic bags on sheep and goats. Tropical animal health and production, 50(5), 997-1003.

Piva, C. D., Orikassa, T. N. (2014). Sacolas plásticas: sua utilização na visão de diferentes autores. Revista de Ciências Gerenciais, 16(24), 9-18.

Pizzani, L., Silva, R. C., Bello, S. F., & Hayashi, M. C. P. I. (2012). A arte da pesquisa bibliográfica na busca do conhecimento. RDBCI: Revista Digital de Biblioteconomia e Ciência da Informação, 10(1), 53-66.

Queiroz, G. D. C., & Garcia, E. E. (2010). Reciclagem de sacolas plásticas de polietileno em termos de inventário de ciclo de vida. Polímeros: Ciência e Tecnologia, 20(5).

Raupp, F. M., & Beuren, I. M. (2006). Metodologia da Pesquisa Aplicável às Ciências Sociais. In Beuren, I. M. (Org.). Como elaborar trabalhos monográficos em contabilidade: teoria e prática (Cap. 3, pp. 76-97). São Paulo: Atlas.

Sharp, A., Hoj, S., & Wheeler, M. (2010). Proscription and its impact on anti-consumption behaviour and attitudes: the case of plastic bags. Journal of Consumer Behaviour, 9(6), 470-484.

Silva, O. L. (2012). A prática da consciência ambiental: um estudo sobre a utilização das sacolas plásticas nas compras de supermercado em sarandi, RS. Florianópolis: UFSC.

Silveira, J. H. P (2017). Sustentabilidade e responsabilidade social: artigos brasileiros. Belo

Horizonte: Passon. v.2.

Ślusarczyk, B., & Kot, S. (2018). Solution For Sustainable Development: Provisions Limiting The Consumption Of Disposable Plastic Carrier Bags In Poland. Journal of Security and Sustainability Issues, 7(3), 450-458.

Sun, Y., Wang, S., Li, J., Zhao D., Fan, J. (2017). Understanding consumers' intention to use plastic bags: using an extended theory of planned behaviour model. Springer, (89), 1327-1342.

Taticchi P. (2010). Business Performance Measurement and Management: New Contexts, Themes and Challenges, Springer Heidelberg Dordrecht London, New York.

Virakul, B. (2015). Global challenges, sustainable development, and their implications for organizational performance. European Business Review, 27(4), 430-446.

Vista, H. A. B., Shibao, F. Y., & Santos, M. R. (2015). Produto Sustentável: Equipamento de Proteção Individual Fabricado Com Plástico Verde. Revista de Gestão Ambiental e Sustentabilidade - GeAS, 4(1), 59-71.

Yang, Y., & Reddy, N. (2013). Utilizing discarded plastic bags as matrix material for composites reinforced with chicken feathers. Journal of Applied Polymer Science, 130(1), 307-312.