



DIFFERENCES IN CONSUMER ATTITUDES TOWARDS SELECTED ASPECTS OF SUSTAINABLE PACKAGING

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Abstract

Product packaging plays an important role not only in managing direct and reverse material flows, but also in managing value for individual customer segments or micro-segments. While the design of secondary and tertiary packaging is more important from a supply chain management perspective, primary packaging is the most important for end consumers. When making purchasing decisions in consumer markets, consumers address various aspects of primary packaging, not only aspects that affect the economic viability of the purchase, but also environmental and social aspects. The perception of this importance is not uniform across the whole consumer population, and usually varies according to the different characteristics of consumer segments. This paper examines the variation in perceived importance of selected sustainable aspects of packaging in relation to consumer chemicals. It presents the results of primary quantitative research among 400 consumers of products such as cleaning agents, laundry detergents and personal care products. Using descriptive statistics, hypothesis testing and two-stage clustering methods, it defines the importance of different aspects of sustainable packaging and the differences in perceptions of this importance in relation to consumers' inclination towards environmental protection. The main conclusion of the paper is that all aspects of sustainable packaging are significantly more important to environmentally inclined consumers, but the ranking of the aspects studied in order of importance is the same for both the mainstream and environmentally inclined consumer segments. Consumers consider it most important that the packaging should provide clear and trustworthy information about the product and be recyclable. For environmentally oriented consumers, however, this is more important.

Keywords: Packaging, sustainable packaging, customer, environmental aspects, consumer chemicals

1. INTRODUCTION

Packaging is a very important part of the product. For example, Martinho et al. [1] reported that 44.1% of respondents consider environmentally friendly packaging to be very important or important, while 35.6% have a neutral attitude. Prakash and Pathak [2] concluded that up to two-thirds of consumers are interested in environmentally friendly packaging of products for daily consumption.

For some consumers, the most important environmental feature of packaging is its recyclability. Information on whether packaging can be recycled is one of the most important pieces of information for consumers about packaging in general [3], with 83% of consumers believing that this information should be easy to find out and 77% believing that it should be stated directly on the packaging [4].

Consumer attitudes towards recycling are therefore very positive, but consumers often do not perceive or do not care about the facts that make packaging recyclable. For example, only 9% of respondents state that they consider it important that packaging is made of only one material [5]. The possibility of recycling is mainly linked to the choice of suitable material. Suitable material is perceived by a certain group of consumers as a primary indicator of the degree of environmental friendliness [6]. According to Koch et al. [4], up to 83% of



consumers consider it important that packaging is made from recyclable materials. In particular, materials that are commonly sorted and recycled have a very positive response. Typical environmentally friendly materials consumers rank especially paper and glass [7]. According to the research conducted by Orzan et al. [8], 74.2% of respondents identified paper as a suitable material, while in the research conducted by Lindh et al. [9], 79% of respondents spontaneously identified paper as the least environmentally negative packaging material. In particular, unbleached paper is often perceived by customers as an ideal form of packaging. Glass is also a very positively rated material [10]. It was identified as an environmentally friendly material by 51.1% of respondents [8].

Besides recyclable materials, consumers are also interested in biodegradable or compostable packaging [5]. For example, in France, according to Herbes et al. [11], biodegradability is an important characteristic for 60% of consumers, while in Germany it is only a few percentage points less. For some consumers, reusable packaging is the preferred option [10]. Bech-Larsen [12] reports that this is the case for 82% of consumers, Herbes et al. [11] report 50% of consumers. According to Greenwood et al. [13], a consumer is only willing to use packaging more than once if the packaging has a tasteful and timeless design.

It is therefore clear that several sustainable (and within that, environmental) aspects are important to consumers. This perception of the importance of different aspects may be influenced by different consumer characteristics such as gender, age, and education. Popovic et al. [14] state that consumers' attitudes towards environmentally friendly packaging are influenced by two main factors, namely lifestyle and the ability to apply knowledge of environmentally friendly packaging in their daily lives. This paper focuses on the influence of these factors, specifically on the perceived importance of selected aspects of sustainable packaging in relation to environmental attitudes.

The conclusions presented in the article can contribute not only to the improvement of the company's packaging and logistics activities, but also to the business performance of the company. Business performance is not clearly defined yet, but it generally signals the success of the company and its ability to survive in the future [15].

2. CONSUMER INCLINATION TOWARDS ENVIRONMENTAL PROTECTION

The inclination to protect the environment is a very important factor as it determines the habits and consumption behaviour of every individual. It also influences their attitude towards the products they buy and their packaging. With regard to the intensity of the inclination towards environmental protection, two main groups of consumers can be distinguished, namely consumers with a proactive approach to the environment (environmentally oriented consumers) and traditional (ordinary/mainstream) consumers.

Consumers with a proactive approach to environmental protection are people who seek to reduce their environmental impact [16]. They prefer traditional products over those that save energy, save water, and reduce pollution, or generate their own contribution to improving the environment [17]. For a group of proactive consumers, the main motivation for purchasing products in environmentally friendly packaging is moral satisfaction, feelings of moral responsibility and a desire to reduce the level of environmental impact of their own activities [16]. They actively seek information and then often use it in their decision-making. Hence, they readily adapt to changes towards more environmentally friendly packaging.

In contrast to these consumers, there are so-called traditional consumers. They are very much influenced by consumer lifestyles. Their main priority is self-satisfaction through a large number of products, often without regard for the waste that burdens the environment [18]. At the same time, traditional consumers are very reluctant to change their habits and adapt to environmentally friendly changes [19].



3. RESEARCH METHODOLOGY

The research aims to identify differences in the perceived importance of selected aspects of sustainable packaging depending on consumers' inclination towards environmental protection.

The research was organized as quantitative. It was based on previous qualitative research that was conducted in the form of a group discussion. The group discussion identified the aspects of sustainable packaging to which the group discussion participants gave the most weight in their purchasing decisions.

After identifying the aspects of packaging considered in the purchase process, a questionnaire was designed for quantitative research. It was used to determine the importance of the following aspects of sustainable packaging for consumer chemicals:

- The packaging protects the product and prevents waste.
- The packaging allows safe handling of the product.
- The packaging provides clear and trustworthy information about the product.
- The packaging is made of a small amount of material.
- The packaging is reusable (refillable).
- The packaging can be recycled.

A five-point attitudinal scale was used to assess the importance of each aspect to consumers, on which respondents indicated whether they considered an aspect of sustainable packaging to be "not important", "not very important", "partly important", "very important" or "extremely important", or chose the option "can't say". In the next question, respondents' attitudes towards environmental protection were explored through the following questions:

- I try to adapt my behaviour to sustainability trends (e.g. by reducing water and energy consumption, changing my purchasing behaviour).
- I am interested in information on sustainable (eco-friendly) products.
- I buy sustainable (eco-friendly) pharmaceutical products.
- I sort and recycle household waste.

Respondents' attitudes towards environmental protection were examined using a 5-point self-assessment scale with the options of "never, sometimes, often, very often, always". The questionnaire also included questions to ascertain demographic characteristics of the respondents such as gender, age, and education.

Prior to the actual data collection, piloting was carried out. The questionnaire was administered to 50 respondents of different gender and age groups. During the piloting, the clarity of the assignment and the time taken to complete the questionnaire were checked. The conclusions drawn through piloting were reflected in the modification of the questionnaire.

The data collection took place from mid-January 2023 to mid-February 2023. It was carried out both by face-to-face interviews and through an electronic version of the questionnaire. In total, data was collected from 400 respondents. The representativeness of the sample was ensured by implementing quota sampling linked to age and gender. The data from the 2021 Census of Population, Houses and Flats in the Czech Republic, which was implemented by the Czech Statistical Office [20,21], was used for quota formation. The data were subsequently processed using IBM SPSS Statistics 24.

The structure of respondents by gender, age and education is shown in **Table 1**. Due to quota sampling, the sample was representative with respect to gender ($\chi^2 = 0.002$; $p = 0,968$) and age ($\chi^2 = 0.001$; $p = 0,999$). However, in terms of educational attainment, the sample of respondents is statistically significantly different



from the population structure ($\chi^2 = 150.248$; $p < 0.001$). The sample of respondents has a significantly lower proportion of respondents with primary education or vocational training, and on the contrary, more respondents with secondary education and significantly more respondents with university education than the population in the Czech Republic (see **Table 1**).

Table 1 Structure of respondents by gender, age, and education

Characteristics	Category	Absolute frequency	Relative frequency (%)	Relative frequency in the population (%)
Gender	Women	204	51.0	51.1
	Men	196	49.0	48.9
Age	18–34	93	23.3	23.2
	36–54	147	36.8	36.8
	55+	160	40.0	39.9
Education	Primary education / vocational training	69	17.3	44.9
	Secondary education	167	41.8	34.0
	University education	164	41.0	21.1

After the data collection, the first phase of the analysis was followed by the distribution of the respondents' answers according to their attitude towards environmental protection. To do this, a two-stage clustering method was used. Two consumer segments were identified. The representation of respondents in each segment can be seen in **Table 2**.

Table 2 Structure of respondents based on their attitude towards an eco-friendly lifestyle

Group of respondents	Absolute frequency	Relative frequency (%)
Eco-conscious	130	32.5
Ordinary consumers	270	67.5
Total	400	100.0

The first group consists of eco-conscious consumers, i.e. consumers with a proactive approach to environmental protection. This group of respondents always sorts waste, very often adapts its behaviour to sustainable trends, is interested in information related to sustainable products and buys eco-friendly consumer goods. The second group of respondents are ordinary (traditional) consumers. This group has a much looser attitude towards eco-friendly activities. The only activity that consumers in this group do very often is waste sorting, making it possible to implement recycling processes. There are statistically significant differences between the two groups of respondents in their attitudes towards carrying out sustainability-related activities. This fact was verified through the Kruskal-Wallis test at the 95% confidence level.

The segments of eco-conscious (proactive) consumers and ordinary (traditional) consumers can be characterised on the basis of commonly used sorting variables. The structure of respondents in both consumer segments is shown in **Table 3**.



Table 3 Structure of consumer segments by gender, age, and education

Consumer segment		Eco-conscious		Ordinary consumers	
Characteristics	Category	Absolute frequency	Relative frequency (%)	Absolute frequency	Relative frequency (%)
Gender	Women	83	63.8	121	44.8
	Men	47	36.2	149	55.2
Age	18–34	17	13.1	76	28.1
	36–54	54	41.5	93	34.4
	55+	59	45.4	101	37.4
Education	Primary education / vocational training	18	13.8	51	18.9
	Secondary education	47	36.2	120	44.4
	University education	65	50.0	99	36.7

The segment of eco-conscious respondents is mostly middle-aged and higher-educated women. The segment of ordinary consumers, on the other hand, is slightly dominated by men of different ages (with a slight predominance of respondents over 55 years of age). In terms of educational attainment, the most frequently represented group are those with secondary education and then university education (see **Table 3**).

4. RESEARCH RESULTS

The second phase of the processing of the results focused on aspects of environmentally friendly packaging. The importance of these aspects was compared according to the respondents' attitudes towards an eco-friendly lifestyle. The results of the analysis are shown in **Table 4**.

Table 4 Importance of sustainable packaging aspects for eco-conscious and ordinary consumers

Environmentally friendly packaging aspect	Average importance		Kruskal-Wallis test	
	Eco-conscious	Ordinary consumers	χ^2	p
The packaging protects the product and prevents waste.	4.00	3.58	19.741	<0.001
The packaging allows safe handling of the product.	4.06	3.75	9.140	0.003
The packaging provides clear and trustworthy information about the product.	4.31	3.93	18.961	<0.001
The packaging is made of a small amount of material.	3.62	3.03	27.904	<0.001
The packaging can be reused (refilled).	3.89	3.10	46.505	<0.001
The packaging can be recycled.	4.32	3.81	20.985	<0.001

Based on the information in **Table 4**, there are statistically significant differences between the two groups of consumers in their perception of all aspects of environmentally friendly packaging. This was confirmed by the Kruskal-Wallis test. All aspects of sustainable packaging examined are more important to eco-conscious consumers than to ordinary consumers. However, the ranking of each aspect is basically the same. For consumers, regardless of their level of commitment to environmental protection, the fact that the packaging



provides clear and trustworthy information about the product and can be recycled is the most important and, conversely, the amount of material from which the packaging is made is the least important.

5. CONCLUSION

Packaging is an important part of the product and can contribute to its increased sustainability as well as the sustainability of logistics operations. At the same time, it can provide more value to customers than traditional packaging. However, it is important to understand what aspects of sustainable packaging are important to customers and also the degree of this importance. The paper contributes to clarifying this topic. Based on primary research conducted, it quantifies the extent of differences between the perceived importance of different aspects of packaging in relation to customers with different attitudes towards environmental protection. It reveals an interesting fact that a proactive approach to environmental protection reinforces the perceived importance of different aspects of packaging but does not affect their ranking. Both groups of respondents (eco-conscious and traditional respondents) find it most important that the packaging provides understandable and trustworthy information about the product and can be recycled and, conversely, the least important is the amount of material from which the packaging is made. However, for eco-conscious customers, this importance is perceived as higher.

The conclusions of the paper contribute to the development of knowledge regarding consumer perception and behaviour in relation to product packaging, but they are also relevant for managers of companies producing consumer chemicals in particular (but not only). The conclusions drawn can help them in addressing the challenges associated with packaging innovation for sustainability as well as in making decisions about differentiating the offer for different consumer segments. As the results of the research show, the different sustainable aspects of packaging are particularly appreciated by middle-aged women with higher educational attainment, i.e. the typical group of the population deciding on household purchases and usually also making the purchases.

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