Use of MaxDiff method in selecting green packaging attributes that influence purchase decisions in online shops

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The aim of this research was to investigate how retailers advertise the green packaging of green products offered in online shops and which packaging attributes should be given more attention when advertising products in online shops. For this purpose, we first conducted a preliminary analysis of 31 green products sold in Slovenian online shops. We found that green packaging is generally poorly advertised in online shops, although it could be a competitive advantage for retailers. To prove that there are attributes of green packaging in relation to other attributes when purchasing green products, we conducted a questionnaire using the included MaxDiff method. The questionnaire was answered by 134 Slovenian respondents. Based on the results, we found that less than one-third of the respondents trust the manufacturer’s information about green products, two-thirds of the respondents are willing to pay more for green products as they believe that the quality of these products is higher than of comparable non-green products, and that our respondents have trust in the labels “Made in Slovenia” and “Locally grown,” although more than one-third of the respondents buy green products regardless of the country of origin. The results of the MaxDiff analysis showed that three attributes associated with green packaging are more important when buying green products and should be highlighted in the description of a product also in online shops, that is, the material of the packaging, the possibility of its reuse, and ecotags.

KEYWORDS
advertising, green packaging, green products, MaxDiff analysis, online shop

1 | INTRODUCTION

Green marketing is a trend that has been growing rapidly in recent years. The definition of green marketing has changed in line with the growing awareness of ensuring environmental sustainability as noted Dangelico and Vocalelli.¹ The first mention of green marketing as ecological marketing dates to 1976, and its rapid growth has been observed since about 2008 due to the Internet, which has enabled a quicker and easier way to the green consumer and to transport products globally. In the research, they concluded that referring to the four Ps (Product, Price, Place, and Promotion) of the traditional marketing mix, in context to the green marketing mix, many types of green products exist on the market and that consumers are willing to pay a higher (premium) price for the products that possess functional attributes or

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show responsibility towards the natural environment. As they suggested, the key role in the green marketing mix is played by the closed-loop supply chain with reverse logistics, while when referring to the fourth P, that is, Promotion, ecolabels represent important tools (enabling product differentiation, providing assurance to consumers and reflecting the company’s green marketing philosophy), as does the carefully chosen definition of advertised contents. As concluded by Tomasin et al., selling green products (with new characteristics, requirements, especially from customers, and new regulations) differs from selling standard products since green marketing has transformed the traditional thinking. As stated by Moravcikova et al., the reasons for implementing green marketing by companies are opportunity, social and environmental responsibility, pressure from the government and competition, and also cost reduction.

Green marketing involves the design of green products, production processes, packaging improvements, labelling, and also advertising methods and strategies. Advertising methods and strategies have mostly been focused on green products; however, recently, packaging has come to the fore. It is expected that the global green packaging market will grow annually by 6% due to the growing consumer awareness (and regulations associated with the protection of the environment). Furthermore, if consumers are to be environmentally conscious, it is important, as concluded by Herbes et al., that they are able to “identify green packaging, distinguish it from regular packaging, and incorporate its benefits into their purchasing decisions.” In their research, they highlighted that perceptions of packaging information can vary by consumer culture, as it is the case with German, French and U.S. consumers involved in their study. They concluded that consumers in all three countries use labels to identify green packaging. The French consumers, however, further identify packaging by its colour or perceived material, and are less likely to seek additional information (e.g., on the Internet) as do their German and U.S. counterparts, who rely solely on information on the packaging. The research found that the French consumers have more confidence in the appearance and texture of the packaging and less in the published information.

The ability to perceive green packaging with different senses is a powerful tool when buying green products in a regular shop. However, this is not the case in online shops, where consumers must develop trust in the written labels and information, or the purchase decision is not implemented. Herbes et al. do not believe that consumers “have all the information they need.” They stated that labels are an appropriate means of providing information in a concise and understandable form. However, their respondents had problems interpreting information correctly. In consequence, it was suggested that adequate and accurate information about environmentally friendly packaging be provided and consumers educated on how to distinguish environmentally friendly packaging from regular packaging.

Since the perception of green packaging depends on consumer culture, we were interested in how green-packed product providers in Slovenian online shops offer information about green packaging to Slovenian consumers. Furthermore, we wanted to identify preference attributes related to green packaging in relation to other attributes when purchasing green products and connect them with offered possibilities in online shops.

## THEORETICAL BACKGROUND

### 2.1 Green product

According to Durif et al., academic literature defines a green product “as a product whose design and/or attributes (and/or production and/or strategy) uses recycling (renewable/toxic-free/biodegradable) resources and which improves environmental impact or reduces environmental toxic damage throughout its entire life cycle.” In the terms of industrial definition, a green product must respect the 3Rs (Reduce, Reuse, and Recycle) certified by an official entity, while biodegradability is a main property of the product. In accordance with Slovenian legislation, green goods are those that have a lower impact on the environment than ordinary goods during their entire life cycle and that enable savings in natural resources, materials and energy, and have the same or better functionalities.

### 2.2 Green packaging

Green packaging (also known as sustainable packaging, eco-packaging, eco-green packaging, eco-friendly packaging, recyclable packaging, etc.) has a positive influence on competitive advantage and business as suggested by Maziriri. It is expected that the global green packaging market will grow annually by 6% due to the growing consumer awareness (and regulations associated with the protection of the environment). Pattie and Charters suggested that packaging “can often be safely reduced without expensive changes to core products or production processes,” while Moravcikova et al. stated that packaging generally becomes lighter with environmental friendliness which consequently reduces transport costs. Zhang and Zhao define green packaging as being lightweight, recyclable, or reused and composed of biodegradable materials with low impact on the environment, produced by the environmentally sensitive manufacturing methods with minimum energy consumption.

### 2.3 Labelling

Ecolabels are an important tool in promoting sustainable production and consumption policies, and in promoting socially responsible businesses and sustainable lifestyles. They serve as a communication tool to distinguish green products from others, raise consumer awareness, and provide specific information for their purchasing decisions. Ecolabels can be owned or managed by government agencies, non-profit environmental advocacy organisations, or private sector entities.
2.4 | Green advertising

Green advertising includes criteria such as showing the company’s commitment to the environment (its responsibility), the relationship between a product and the environment, and the promotion of a green lifestyle (with or without the inclusion of a product).\textsuperscript{14,15} According to Wagner and Hansen,\textsuperscript{16} three types of leverage aspects of environmental claims may be used in advertising, that is, rational, emotional, or moral (or even a combination of the three of them), to communicate to different audiences. As stated in the research, the rational type was expected to be more extensively used than the emotional and moral one.

2.5 | Green scepticism

It is important how and to what extent companies advertise green products, namely, positive features of green marketing have also been facing many problems. In the past, various companies took advantage of the benefits and impact of green marketing on the public through false facts and product advertising. Consequently, green scepticism emerged.\textsuperscript{2} As Goh and Balaji\textsuperscript{17} noted, the society detected that the companies even began manipulating the truth about their own environmental impacts to gain a better public image and, consequently, greater profits. According to their research, a half of the respondents in the survey claimed that they did not fully believe in the environmental policy of companies. Very similar results were obtained in the research published by the European Commission,\textsuperscript{18} where just over a half of the respondents (EU citizens) (52\%) revealed that they generally trust the producers’ claims about the environmental performance of their products. Therefore, producers have to impose an “honest, trustworthy, and altruistic environmental policy” on consumers if they want to gain the trust of consumers to buy their green products\textsuperscript{19} or even pay for them more.

2.6 | Green purchase intension

Over the past decade, much of the research has focused on the area of attitudes and actual purchasing behaviour of green consumers in order to develop an appropriate green strategy.\textsuperscript{20} As observed by Trivedi et al.,\textsuperscript{21} the willingness to green purchase intension “differs across consumers and creates a gap between intention and actual behaviour.” As it was found by Wandasell et al.\textsuperscript{22} in their extensive literature review, the purchase intention of green-packaged products depends on the origin of the products, price, gender and even personal attitudes, level of the consumer awareness/concern about the environment and their perception about the reusable, recyclable or biodegradable packaging. In different studies,\textsuperscript{23,24} a review of factors affecting green purchase were studied in detail according to various literature. However, as it was concluded by Tseng and Hung,\textsuperscript{24} the correlations between factors and willingness of consumers to buy green products are not always strong and positive, especially in the case of psychological factors (knowledge, behaviours, and attitudes). In the research, they concluded that there is a gap between consumers’ expectations and their perceptions of green information products, and they studied these gaps in terms of 11 chosen attributes. They found out that larger gaps exist between consumers’ expectations and their perceptions of green products information about the recyclability ratio, labelling of product ingredients, recycling packaging materials, ecolabels, environmental impact of materials and energy conservation rates, while smaller gaps exist in the case of appearance, user-friendliness, conformance, durability and function performance. According to the research, consumers thus expect “higher environmental performances of green products than that provided by the green product providers.”

An important topic of studies in recent decade has also been whether consumers with higher levels of environmental responsibility are willing to pay a higher price for green products or their other attributes. Laroche et al.\textsuperscript{25} suggested in their study the conceptual framework of five factors that influence the consumers’ willingness to pay more for green products: demographics, knowledge (eco-literacy‡), values (individualism, collectivism, security, fun/enjoyment), behaviours (considering environmental issues when making purchase, recycling, buying environmentally friendly products), and attitudes (importance and inconvenience of being environmentally friendly, severity of environmental problems, and level of responsibility of corporations). According to Mai,\textsuperscript{26} only a half of the respondents expressed willingness to pay more for recyclable packaging independently of gender or age group (the tag of “recyclable packaging” was the key factor in the willingness to pay more), while in another study,\textsuperscript{27} respondents’ willingness to pay more for green-packaged products depended on the consumer budget and also quantity of information.

2.7 | Online shopping

Online shopping provides “experience that is not limited by space, time, and product types.”\textsuperscript{28} It has increased sharply in recent years, partly also due to the emerging Covid-19 epidemic. In Slovenia, 71\% of individuals aged 16–74 years made at least one online purchase (bought or ordered a product or a service) in 2021 (63\% in 2020). The proportion of people buying online has increased in most age groups.\textsuperscript{29}

In online shops, information about the characteristics and benefits of green products/packaging can be provided to consumers in various forms: by ecolabels,\textsuperscript{2} descriptions\textsuperscript{30} and photos next to or near the offered product, blogs/forums, news, online reviews and information on social networks\textsuperscript{31} and so forth. If consumers have too little information or are overloaded with it, it is difficult for them to identify relevant and true data about a green product, and this may discourage their purchase intention.\textsuperscript{32,33} As noted by Herbes et al.,\textsuperscript{6} information can increase the purchase intent and trust if it is perceived as useful and appeals to a broader market (e.g., ecolabels influence decisions only in the environmental segment). According to Mou et al.,\textsuperscript{20} “high-quality product description has no significant positive effect on
purchase intention, but it has significant positive effects on product cognitive involvement (functional and utilitarian performance) and product affective involvement (consumers’ relevance based on an individual’s feelings, emotions and moods).”

2.8 | Research questions

In line with the literature review and the aim of the research, the following research questions were posed:

RQ1: Is the Slovenian consumer willing to pay more for green products?
RQ2: Does the Slovenian consumer trust the advertised information about green products provided by companies?
RQ3: Do the attributes “Made in Slovenia” and “Locally grown” influence the purchase decision?
RQ4: What attributes of green packaging could positively influence the purchase of green products?

3 | RESEARCH METHODOLOGY AND METHODS

The research was conducted in two phases (Study 1 and Study 2) according to the methodology outlined in Figure 1. The purpose of Study 1 was a preliminary analysis in which the advertising of green packaging of green products offered by various Slovenian online shops was qualitatively and quantitatively analysed. The purpose of Study 2 (main analysis) was to find out the respondents’ opinion about green packaging and to select preference attribute of green packaging among other attributes when buying a green product.

3.1 | Study 1 (preliminary analysis)

In Study 1, focusing on the advertising of green packaging of green products offered by online shops on the Slovenian market, 29 online shops were included and 31 green products were analysed according to the types of advertising and advertised values of green packaging. Ten online shops are specialised in green products (e.g., GlinaSi, https://glina.si/; Zeliščno posestvo Cvetka, https://zelisca-cvetka.si/; Nona Luisa, https://nonaluisa.com/; etc.), while others are not, although they have some green products in their offer (i.e., Olive Garden, https://olivegardencosmetics.com/; Nelipot, https://nelipot.si/; etc.). According to Grand View Research, personal care and healthcare products comprise segments that use green packaging; thus, green products the packaging of which was analysed were mostly personal care products, five of them were beverages (i.e., Malinca, https://www.malinca.si/; drobTinka, https://www.drobtinka.si/; etc.), one product was a candle (Oilright, https://www.oilright.si/), and one was a crayon (Medenka, https://medenka.si/).

The variables analysed in green packaging advertisements in online shops of various retailers were determined according to the study by Singh and Pandey and are listed in short explanations in Table 1. The types of advertisements were also determined according to Table 2, considering the classification given by Leonidou et al.

| Value             | Explanation                                                                 |
|-------------------|-----------------------------------------------------------------------------|
| Epistemic value   | Novelty value offered by green packaging that influences buyers’ willingness to pay a higher (premium) price (recyclable, biodegradable, and reclaimable) |
| Functional value  | Benefits derived from the functional, utilitarian, or physical performance of an alternative (reusability, simplification of packaging, ease of disassembly, and lightweight packaging) |
| Biospheric value  | Distinct self-identity often associated with green packaging (reduced energy/water consumption for packaging production, reduced carbon footprint, zero-waste, and sustainability) |
| Symbolic value    | Individuals’ decision to go green or not based on perceived costs and benefits to the ecosystem and biosphere as a whole (eco-friendly labels, labels for recycling, carry-along disposal instructions, and eco-friendly printed materials) |

FIGURE 1  Research model
The results obtained by Study 1 were interpreted mostly qualitatively, just some of them were expressed in shares and are presented in Section 4.1.

According to the results of Study 1 (green packaging values and different types of green packaging advertising) and according to important green packaging advertising attributes found in different studies, a questionnaire was designed for the purpose of Study 2.

### 3.2 Study 2 (main analysis)

The questionnaire was designed using Sawtooth Software SSI Web 7.0.30 (Sawtooth Software, Inc., USA) and consisted of five sections with an integrated MaxDiff analysis (Figure 2).

#### TABLE 2 Type of green packaging advertising

| Type of advertising | Explanation                                                                 |
|---------------------|-----------------------------------------------------------------------------|
| Rational            | Advertising contains information about benefits, advantages, efficiencies and features that help individuals decide on the environmental qualities of a product. |
| Emotional           | Advertising contains emotional points such as fear, love, joy, guilt, pride, or pleasure to create an emotional response to a product. |
| Moral               | Advertising contains points related to ethics and morality regarding the wrongness or rightness of a situation, problems, or actions. |

#### FIGURE 2 Questionnaire with MaxDiff analysis

The first section of the questionnaire consisted of two questions. The first, single choice, question divided the respondents into those who frequently or occasionally buy green products and those who never buy them. The respondents who frequently or occasionally buy green products continued to complete the questionnaire, while the respondents who never buy green products were directed to the next, single choice, question, which asked them about the reason for not buying green products, and then to the final, fifth, section of demographic questions.

The second section of the questionnaire was the Maximum Difference Scaling (MaxDiff) analysis (also known as best-worst scaling). The MaxDiff analysis has become an ideal way to obtain priority/importance ratings for various purposes. This is a fairly simple method that provides a much better discrimination among attributes than traditional rating scales. The questions in this method are easy to understand; therefore, respondents can be children or adults with different educational and cultural backgrounds. Since respondents make choices rather than express the strength of preferences using a numerical scale, there is no possibility of bias in the use of the scale. Scaling multiple items makes it easier for researchers who have little experience with statistics to conduct sophisticated research. Item estimates are easy to interpret since they are placed on a total scale of 0 to 100 points and add up to 100. In our analysis, the respondents were shown 10 times a set of five attributes automatically selected by the software and asked to select which attribute was most important and which was least important when purchasing a green product (Figure 3).

#### III. Questions on green products

Mark the three statements that you think are the most important when you think of a green product. (multiple choice)

- Packaged in green packaging.
- Higher price.
- Sustainable.
- Recyclable.
- Made from recycled and reused materials.
- Made from natural or organic ingredients.
- Harmless to human and animal health.
- Environmentally friendly.

Where do you most often buy green products?

- In specialised shops.
- From special corners in supermarkets.
- From market.
- From organic farmers.
- In online shops.

Rate the extent to which you agree with the following statements: (matrix questions with five-point Likert scale)

- I am willing to pay more for green products.
- Green products are of higher quality than comparable non-green products.
- I buy green products regardless of the country of origin.
- I can find green products quickly in online stores.
- I am generally sufficiently informed about green products.
- I receive sufficient information about the benefits of selected green products in online shops.
- I completely trust the information about green products provided by manufacturers.
- I buy only the green products that are packaged in green packaging.
- I am aware of the importance of sustainable development.

#### IV. Questions on green packaging

Mark five terms that you think best describe green packaging. (multiple choice)

- Selectable
- Recyclable
- Reused
- Natural appearance
- Returnable
- Non-toxic
- Minimal
- Zero waste
- Sustainable
- Innovative
- Biodegradable
- Practical
- Harmless
From the attributes listed, select the one that convinces you the most and the one that convinces you the least to buy a green product.

| Most important | Least important |
|----------------|-----------------|
| ○ Label “Made in Slovenia”. | ○ |
| ○ Aesthetic appearance of packaging. | ○ |
| ○ Product has not been tested on animals. | ○ |
| ○ Sustainable product company. | ○ |
| ○ Returnability of packaging. | ○ |

For this purpose of the MaxDiff analysis, the question and attributes were set as follows.

Question: “From the attributes listed, select the one that convinces you the most and the one that convinces you the least to buy a green product.”

Attributes: 17 attributes were selected according to different sources/studies and preliminary analysis. As it can be seen from Table 3, among these 17 attributes, some attributes were product related, for example, the price, the label “Made in Slovenia,” the label “locally grown,” information that “Product has not been tested on animals,” and some were related to the company and brand, for example, “Sustainable product company” and “Sustainable product brand.” The idea was to combine these attributes with packaging attributes to get more reliable data about the importance of packaging attributes among other attributes, and to get better insights into consumer perception.

The question was shown to the respondents 10 times, each time with a set of five different attributes automatically selected by the software. Each attribute was shown three times during the 10 displays. The respondents had to mark the most important and least important attribute when deciding to buy a green item. The results obtained by using the command “Analysis/Max Diff Scores” in the Sawtooth Software program were in the form of raw and rescaled scores which are a direct result of the HB (Hierarchical Bayes) analysis.

Raw logit-scale estimates determined that the anchor element equals zero. Negative results are below the anchor (i.e., significant/irrelevant threshold) and positive results above. In this scaling method, each response has the same weight and is expressed in positive and negative value. Assuming that raw estimates have a drawback where some responses may have significantly more weight than others in calculating the sample average (their results have a much larger range than other responses), the program also gives us a 95% confidence interval. This shows us with what certainty we accept certain estimates of the displayed parameters. This means that if the experiment is repeated several times and a new random sample is identified each time, the true population average in 95% of the experiments would fall within the calculated confidence interval. In other words, 95% believe that the true average for the population is within the 95% confidence interval (again assuming unbiased, random samples). Probability scale (anchor = 100) were estimated attributes where the

| Attribute | Source of selected attribute |
|-----------|-----------------------------|
| Packaging handling labels | Singh and Pandey<sup>34</sup> |
| Natural<sup>1</sup> appearance of packaging | Preliminary analysis |
| Aesthetic appearance of packaging | Tseng and Hung<sup>24</sup> |
| Natural<sup>1</sup> appearance of a product | Preliminary analysis |
| Simplicity of packaging | Preliminary analysis; Pattie and Charters<sup>10</sup> |
| Returnability of packaging | Preliminary analysis |
| Additional information about the green product | Preliminary analysis |
| Sustainable product brand | Moravcikova et al.<sup>3</sup> |
| Ecolabels on a product | Wandosell et al.<sup>22</sup> |
| Sustainable product company | Moravcikova et al.<sup>3</sup>; Laroche et al.<sup>25</sup> |
| Possibility of reusing packaging | Preliminary analysis; Zhang and Zhao<sup>11</sup> |
| Price of a product | Dangelico and Vocalelli<sup>1</sup>; Laroche et al.<sup>25</sup>; Wandosell et al.<sup>22</sup> |
| Label “Made in Slovenia” | Preliminary analysis; Wandosell et al.<sup>22</sup> |
| Label “Locally grown” | Preliminary analysis |
| Product has not been tested on animals | Singh and Pandey<sup>34</sup> |
| Product information (e.g., composition) | Wandosell et al.<sup>22</sup> |
| Packaging composed of environmentally friendly materials | Wandosell et al.<sup>22</sup> |
anchor element is equal to 100 for each response. All grades are positively ranked from 0 to 100. These data allow us to conclude, for example, that a subject with the grade 10 is twice as important/appropriate as a subject with the grade 5.

The third section of the questionnaire addressed the respondents’ opinion about green products and consisted of two multiple choice questions. Another part of this section gave us an insight into the respondents’ opinion about green products and gave us some answers to the research questions posed. This part included statements which were evaluated according to the bipolar Likert scale with five responses: strongly disagree, disagree, no opinion, agree, and agree. A point value was assigned to each response, that is, $-2$ = strongly disagree, $-1$ = disagree, $0$ = undecided, $+1$ = agree, and $+2$ = strongly agree. The results were presented as a diverging stacked bar chart where the percentages of strongly agree/agree responses are shown to the right of the zero line and the percentages of strongly disagree/disagree responses to the left. The percentages of undecided responses are split down the middle of the graph. For each statement, responses strongly disagree and disagree were summed up and discussed together as disagree responses, while responses strongly agree and agree were summed up and discussed together as agree responses. The mode (Mo; the most frequently occurring point value) and the mean value ($\bar{x}$; the overall average response) were also calculated and presented for each statement. To calculate the correlations between statements at ordinal level, and since the sample was relatively small (131 respondents), the Spearman correlation coefficient was calculated in the research.

The fourth section of the questionnaire was focused on the respondents’ opinion about green packaging through two multiple choice questions. With the first question we wanted to find out by which characteristic our respondents recognise green packaging, while from the answers to the second question we wanted to find out which terms our respondents most often associate green packaging with. The chosen terms were selectable (the term connected with the possibility of properly separated and sorted), recycled, reused, natural appearance (according to Mugge et al., natural could be defined as that it “reflects the degree to which an object’s appearance is organic, irregular, and curved (in contrast to geometric shapes that are man-made and planned”), returnable, non-toxic, minimal (without additional boxes, fillers etc.), zero waste, sustainable, innovative, biodegradable, practical, and harmless. The terms describing the characteristics of green packaging were carefully selected by using those that are familiar to the Slovenians and usually used in conversations about green packaging.

The fifth section consisted of demographic questions asking the respondents about their age, gender, completed education and status.

The web link to the questionnaire was sent by email to some of the respondents who forwarded the invitation (snowball principle). The questionnaire was active from 26 May to 4 June 2021 and was completed by 134 respondents (Table 4).

The analysis of results in Study 2 was performed using SPSS Statistics V26 (IBM, USA).

| Table 4 | Demographics of respondents |
|---------|-----------------------------|
| **Demographics** | **Percentage** |
| Gender | | |
| Male | 17.9% |
| Female | 82.1% |
| Age | | |
| <25 | 45.5% |
| 25–49 | 37.3% |
| >50 | 17.2% |
| Education | | |
| Finished secondary school | 44.8% |
| Finished higher education school (undergraduate) | 43.3% |
| Finished higher education school (graduate) | 11.9% |
| Status | | |
| Student | 50.7% |
| Employed | 44.0% |
| Unemployed | 1.5% |
| Retired | 3.7% |

4.1 | Results with Discussion

4.1 Results of Study 1: Types of advertising and advertised values of green packaging in online shops (preliminary analysis)

All of the products analysed were green products and most of them (87.1%) were packaged in green packaging (note: some retailers communicate the green product as a whole; that is, descriptions of green product and green packaging are not separated; in this case, the packaging that was visually apparent as not “green” was treated as non-green packaging and was listed among other [12.9%] products).

Fewer than half of the products packaged in green packaging (41.9%) had a description about the packaging values. In general, information about green packaging in online shops was not difficult to find if it was next to or in the vicinity of the product description; otherwise, it took a few clicks to get the information we were looking for. A total of 35.5% of the analysed online shops have separate pages describing green packaging and its composition, benefits, packaging values, and so forth. Information about the packaging is often located in the news section, blogs or even on the main pages describing the retailer or products.

Most descriptions tend to be informative and align with rational advertising, for example, “In 2019, we replaced over 60% of existing plastic packaging with more sustainable packaging made of glass or aluminium packaging … since 2016, we have packaged deodorants in 100% degradable cardboard tubes that make it easier to apply and consume the product down to the last drop – and the tubes can be disposed of in organic waste after use.”; very few are emotional, for example, “We take care of nature as nature takes care of us. Let us keep the planet beautiful and clean.”; or “Be one step...
Similarly as in the study by Leonidou et al., most advertising information on green packaging in our study were usually very general, written in a rational type.

The epistemic values that influence the buyers’ willingness to pay a higher price for a product were noticed in some descriptions of green packaging. For example, 35.5% of the products studied advertise recyclability (e.g., “Environmentally friendly, 100% recyclable cardboard packaging.”) and 32.3% biodegradability (e.g., “It is made from sugar cane, compostable and biodegradable.”) The innovative design of green packaging is promoted by 16.1% of retailers, for example, “Innovative technological solutions in the design of the bottom of deodorant packaging extend the functionality of paper packaging, which is quite comparable to other, less environmentally friendly types of packaging, by allowing the consumption of the entire contents of the product.” However, two of the retailers are directly involved in the packaging development for their products.

Some functional values are also advertised by the retailers. A total of 12.9% of them advertise reusable packaging, and only two online shops (6.5%) offer the possibility to return the packaging, for example, “10 boxes can be returned in exchange for a new product.” A total of 22.6% of the retailers advertise simple, minimalistic, and lightweight packaging without additional boxes, fillers, and so forth, for example, one of the retailers emphasises that despite the minimalism, they “offer a great and ‘green’ unboxing experience.”

Among the biospheric values, only one description of green packaging mentions the concern for preserving the planet: “The packaging is 100% biodegradable, all ingredients are biodegradable and do not accumulate in the environment or aquatic organisms, the double-volume packaging contributing to even less packaging.” Only two retailers (6.5%) advertise a lower carbon footprint, while none of the retailers advertises lower energy or water consumption during the packaging production. Only one retailer advertises zero waste, although it is very difficult to find this information as it is written as an article on their blog. Sustainability through green packaging is advertised by 12.9% of retailers.

The symbolic value was also analysed in the research. The ecological symbols indicating green packaging in online shops are not consistent and only one retailer uses the universal recycling symbol to advertise that the packaging is recyclable (others have written messages about the recyclability of the packaging). Disposal instructions are provided by 12.9% of retailers. Although not associated with the packaging, the label “Made in Slovenia” was noticed on 61.3% of the products, suggesting that retailers see the opportunity to promote locally grown and produced products.

As it can be seen from the results of the preliminary analysis, retailers mainly advertise the epistemic and functional values of packaging, while the biospheric values are somewhat neglected, despite the promotion of the conservation of the planet, which affects human health, the protection of animal life and also the conservation of flora could give retailers a competitive advantage in the market. On the contrary, it was found that in some online shops, retailers describe that the content (of green products) is of high quality regardless of ecological packaging, for example, “We put special emphasis on a sustainable and environmentally friendly way of choosing green packaging – without compromising the quality of the product.”

The respondents who never buy green products (5.2%) were excluded from a further analysis (Figure 4). The reason respondents never buy green products is mainly because they do not have enough information about green products (57.1%), because they think green products are expensive (14.3%) and because they are not interested in this type of products (14.3%).

On the other hand, 94.8% of the respondents buy green products (Figure 4). A total of 38.1% of the respondents buy green products
weekly, 35.1% buy green products occasionally, 17.2% buy green products only two to three times a month, and only 4.5% of the respondents buy green products daily. The respondents mainly buy green products from special corners in supermarkets (39.5%), market (18.9%), organic farmers (18.0%), specialised shops (15.5%), and to the smallest extent, in online shops (8.2%).

4.2.1 | Respondents' general opinion about green products

The respondents were asked to mark three out of nine properties that are most important to them when thinking about green products. As it can be seen from Figure 5, our respondents believe that green products must be environmentally friendly (24.4%), and harmless to human and animal health (21.0%). The respondents believe that it is more important for green products to be made from natural or organic ingredients (17.3%) than recycled and reused materials (12.1%). Slightly less important to them is that green products are recyclable (7.6%) or sustainable (7.3%). To a much lesser extent (2.6%), they associate a higher price with green products. The least important to our respondents is that the product is more expensive or that it is packed in green packaging.

Figure 6 shows that most of our respondents (89%) are aware of the importance of sustainable development (undecided 8.7%; Mo = 4, \( \mu = 1.25, SD = 0.81 \)). Most of our respondents (68.5%) are willing to pay more for green products (undecided 22.0%; Mo = 4, \( \mu = 0.68, SD = 0.81 \)); this opinion can also be related to the previous finding that they do not associate green products with a higher price. A total of 60.6% of the respondents claim that the quality of green products

![Figure 5 Preferred properties of green products (n = 127)](image)

![Figure 6 General opinion on green products (n = 127)](image)
is higher than that of comparable non-green products (undecided 26.0%; Mo = 4, $\bar{X} = 0.57$, SD = 0.81). A total of 37% of the respondents purchase green products regardless of the country of origin, while for 36.2% of the respondents, the country of origin is an important piece of information which influences the purchase of green products (undecided 26.8%; Mo = 4, $\bar{X} = -0.02$, SD = 0.81). One-third of the respondents (33.9%) are generally adequately informed about green products, while slightly fewer (31.5%) are not (undecided 34.6%; Mo = 3, $\bar{X} = 0.00$, SD = 0.81). Only 23.6% of the respondents trust the information provided by manufacturers about green products, while 34.6% do not. Nevertheless, it should be noted that a higher percentage (41.7%) of the respondents was undecided as to whether or not they could trust the information provided by manufacturers (Mo = 3, $\bar{X} = -0.17$, SD = 0.81). Only slightly less than one-third of the respondents (31.5%) receive sufficient information about the benefits of selected green products in online shops, while 28.3% do not, and again a higher percentage (40.2%) of the respondents was undecided about this opinion (Mo = 3, $\bar{X} = -0.02$, SD = 0.81). A total of 44.8% of the respondents are able to quickly find green products in online shops, whereas 23.6% need more time (undecided 32.3%; Mo = 4, $\bar{X} = 0.21$, SD = 0.81). Only 19.7% of the respondents buy green products only if they are packaged in green packaging, while 57.5% do not care about the packaging (undecided 22.8%; Mo = 2, $\bar{X} = -0.56$, SD = 0.81).

After analysing and calculating Spearman correlation coefficients between opinions, two interesting correlations emerged. The weak correlations values were noticed regarding the willingness of the respondents to pay more for green products. Namely, the respondents who are willing to pay more for green products also believe that the quality of green products is higher than the quality of comparable non-green products ($r = 0.333$, $N = 127$, $p < 0.001$). The respondents who claim to receive sufficient information about the benefits of selected green products in online shops are also sufficiently informed about green products ($r = 0.446$, $N = 127$, $p < 0.001$) and can find them quickly in online shops ($r = 0.430$, $N = 127$, $p < 0.001$).

Spearman correlation coefficients between each opinion and respondent demographic characteristics (gender, age, education, or status) were also calculated; however, no correlation was established although it was confirmed by Laroche et al.25

4.2.2 | Respondents' general opinion about green packaging

Considering green packaging (Figure 7), our respondents are most likely to recognise it by the ecolabels (31.0%). In the preliminary analysis, it was found that retailers hardly use ecolabels for advertising green packaging in online shops (possibly because ecolabels are usually printed on the packaging itself); however, as it can be seen from the respondents' answers, they recognise green packaging by these labels; therefore, more attention should be paid to promote green packaging by using appropriate symbols in online shops as well.

The respondents recognise green packaging also by the type of material (25.3%) and the reduced quantity (19.2%). Some respondents recognise the packaging by the colour (11.0%) and also by the information on the ecological nature of green packaging written in online shops (11.7%). The respondents also recognise green packaging by its innovative form; however, in a lesser extent (1.8%).

The respondents had to mark five characteristics for which they thought best describe green packaging. The results are presented in Figure 8. As it can be seen from the results, the respondents described green packaging as recycled (15.4%), reused (13.7%), biodegradable (12.4%), produced and used in a zero waste system (11.5%), sustainable (8.8%), harmless (10.4%), and non-toxic to the environment and humans (8.3%). To a lesser extent, the respondents associated green packaging with natural appearance (5.5%), disposal/selection (4.4%), and returnability of the packaging (3.6%). Reduced (2.7%), simplified (2.2%), and innovative green packaging (0.9%) are not yet recognised as important attributes by our respondents. These findings are consistent to some extent with the results of the study by Hao et al.,48 where it was found that consumers place greater importance on the practical benefits of green packaging, for example, convenience, reusability, and protective function.

**FIGURE 7** How is green packaging recognised? ($n = 127$)
4.2.3 Results of MaxDiff analysis

In the MaxDiff analysis, the respondents were asked to mark attributes that most and least convince them to buy a green product. In Table 5, raw logit-scale estimates are shown.

Figure 9 presents the probability scale (anchor = 0 to 100) of estimated attributes. Proportional differences are directly related to the probability of choice and can also be expressed as percentages (e.g., 11.3 or 11.3%). The attribute that has the highest percentage is also the most important. Between the most and the least important properties, the difference is almost tenfold (11.3/1.5).

While it is easy to recognise green packaging in a regular shop, it is very difficult to recognise it in online shops; hence, the advertising through appropriate descriptions should be an important tool for online shopping. According to the results in the MaxDiff analysis (Figure 9), packaging composed of environmentally friendly materials is the most important attribute in buying green products, and thus an important tool for advertising. The latter is in line with the findings of some researchers, for example, Rokka and Uusitalo, whose study showed that consumers “favoured environmentally labelled packaging as the most important criteria in their choice.” However, the obtained results are contrary to the result shown in Figure 5, where “packed in green packaging” is the least important parameter among the product attributes. This discrepancy in the results should be checked with a consistent terminology. Indeed, it seems that “environmentally friendly packaging” is a term that consumers understand as ecological awareness, while “packed in green packaging” does not convey the desired “essence” to them.

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**TABLE 5** MaxDiff analysis raw scores

| Attribute | Average | 95% lower | 95% upper |
|-----------|---------|-----------|-----------|
| Packaging composed of environmentally friendly materials | 1.81 | 1.60 | 2.03 |
| Product has not been tested on animals | 1.45 | 1.03 | 1.88 |
| Product information (e.g., composition) | 1.40 | 1.09 | 1.71 |
| Label “Locally grown” | 0.96 | 0.55 | 1.37 |
| Possibility of reusing packaging | 0.73 | 0.47 | 0.99 |
| Label “Made in Slovenia” | 0.64 | 0.28 | 1.00 |
| Price of a product | 0.43 | 0.01 | 0.85 |
| Sustainable product company | 0.17 | –0.13 | 0.47 |
| Ecolabels on a product | 0.04 | –0.23 | 0.31 |
| Sustainable product brand | –0.32 | –0.57 | –0.06 |
| Additional information about the green product | –0.41 | –0.66 | –0.15 |
| Returnability of packaging | –0.41 | –0.66 | –0.16 |
| Simplicity of packaging | –0.44 | –0.65 | –0.23 |
| Natural appearance of a product | –0.78 | –1.01 | –0.55 |
| Labels for handling packaging | –1.65 | –1.85 | –1.45 |
| Natural appearance of packaging | –1.66 | –1.94 | –1.38 |
| Aesthetic appearance of packaging | –1.97 | –2.31 | –1.63 |
If green products are not tested on animals, this is another important piece of information in online shops along with more detailed information about green products (e.g., composition). As seen in Figure 6, only one-third of the respondents are generally sufficiently informed about green products; therefore, additional information is recommended.

Labels “Locally grown” and “Made in Slovenia” were recognised in the primary analysis as a frequently mentioned information in online shops. Information on the origin is also important for more than one-third of the respondents when buying green products (Figure 6). According to the results of the MaxDiff analysis, the previous findings could be confirmed; that is, “Locally grown” and “Made in Slovenia” are important information when buying green products also in online shops.

From Figure 8, it could be concluded that reusability is an important characteristic of green packaging. According to the results of the MaxDiff analysis, reusability is also an important attribute when buying green products and should consequently be advertised more often as it is naturally a benefit of the product offered (in the primary analysis, only 12.9% of green packaging was advertised as reusable).

Most of our respondents are willing to pay a higher price for green products (Figure 6); however, the price as such is also an attribute that influences the purchase decision, as the MaxDiff analysis revealed.

Given that our respondents are well aware of the importance of sustainable development (Figure 6), it is not surprising that they identified sustainably oriented companies as an important attribute when purchasing green products.

The aim of the MaxDiff analysis was to find out how important the attributes related to green packaging are when buying green products. The results show that only the material of the packaging, the possibility of its reuse and ecolabels are the attributes that influence the purchase of green products, while other attributes, for example, returnability, natural and aesthetic appearance, and information on how to handle the packaging, are not considered important for the purchase of green products by our respondents. However, the sample of the respondents in our research was relatively small; therefore, the research could be upgraded by recruiting more participants for us to check whether the sample size affected the results.

5 | CONCLUSIONS

The first research question (RQ1), which we stated according to the literature review, was “Is the Slovenian consumer willing to pay more for green products?” For the respondents who frequently or occasionally buy green products, a higher price is not an issue, as most of them (68.5%) agreed that they are willing to pay more for green products. These respondents also believe that the quality of green products is higher than the quality of comparable non-green products. The price is also an important attribute at buying green products as it was perceived from the results of the MaxDiff analysis. Our conclusions are comparable to the conclusions from some studies (i.e., Dangelico and Vocalelli). The respondents were not as unanimous at the second research question (RQ2) “Does the Slovenian consumer trust advertised information about green products provided by retailers?” One-third of the respondents do not trust the advertised information about green products and less than one-third do. A high proportion, 41.7% of the respondents, is undecided whether or not they believe the advertised information. However, information about green products (e.g., composition) is a very important attribute in buying green products that influences the consumer to continue buying a green product. If the consumer has a bad experience with the product due to inappropriate information, then they will lose trust in the product, brand, manufacturer, and will therefore not come back. This is especially important for online consumers, whose decision about the purchase is based on written information.
“Do the attributes ‘Made in Slovenia’ and ‘Locally grown’ influence the purchase decision?” (RQ3) The preliminary analysis revealed that most of the green products studied are labelled with the attribute “Made in Slovenia” and that retailers see the opportunity to promote locally grown and produced products. According to the results of the MaxDiff analysis, it is also obvious that our respondents trust these two labels, which also have a high influence on the purchase decision of a green product; thus, they are desired as information also in online shops.

The main research question (RQ4) was related to green packaging, that is, “What attributes of green packaging could positively influence the purchase of green products?” When it comes to green products, green packaging is the last element that our respondents think of. However, when purchasing green products, packaging that is made of environmentally friendly materials is the most preferred attribute by our respondents, as shown in the MaxDiff analysis (Figure 9). It is important that retailers inform consumers about the materials the packaging is made of, especially in online shops. The second attribute that is also preferred when buying green products is the ability to reuse packaging; the information about this functional value should hence be included in the online shop. The third important attribute in buying green products derived from the MaxDiff analysis is ecolabels. It was mentioned earlier in the preliminary analysis that retailers in online shops use various non-standard symbols that are not familiar to consumers, although our respondents confirmed that ecolabels are an important element in terms of green packaging. The use of standardised ecolabels in online shops will help better inform consumers and facilitate their purchasing decisions.

Information about green packaging should be placed in visible locations in online shops, possibly along with the description of the green product or on separate pages that can be easily accessed with only a few clicks. And if a product is offered as a green product and is packaged in green packaging, then the latter should be advertised without apologising that the product is of high quality despite the “natural” appearance of the packaging. It is also recommended to advertise other values of the packaging, for example, recyclability, reusability, biodegradability, and so forth, since consumers are becoming more aware of the importance of sustainable development, as it was also shown in our research.

Retailers should not forget that packaging is an important communication object with either structural or graphic/iconic or informative elements and should as such be used much more for promotional purposes.

In the study, we faced the following limitations:

The sample of the respondents was relatively small, thus more participants recruiting in our research would give more accurate results. A limitation of research may be the measurement of intentions rather than actual behaviour.

Cultural factors, which have a critical influence on consumer behaviour, also play a role. An important factor is also reflected in the willingness of investment burden perceived by the price and other factors.

In the research, we chose the term “green,” the meaning of which is consistent with the Slovenian legislation, and we, thus, assumed that this term is familiar to Slovenian respondents. In the continuation of the research, it would be necessary to check what the respondents understand by the term “green” and whether their understanding corresponds to the “green” notation we used in the research.

DATA AVAILABILITY STATEMENT
Data available on request due to privacy/ethical restrictions.

ENDNOTES

1 According to the results of the research, 77% of the respondents were willing to pay more for environmentally-friendly products if they were confident that the products are truly environmentally-friendly.

2 A closed-loop supply chain is a combination of traditional supply chain (forward logistics) and reverse logistics in terms of zero waste. This means that a product is manufactured, shipped and distributed through a reseller (forward logistics), while the manufacturer after that encourages them to return products which are no longer functional or needed (return logistics). The manufacturer can either repair, resell, reuse (recycle) these returned products.

3 Eco-literacy means the knowledge with which the consumer is able to identify different symbols, concepts and behaviours with ecological meaning.

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