

## Effects of packaging design aspects on consumer sustainable purchases behavior

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### Abstract

Packaging design is a potent communication tool that may affect customer behavior and preferences in addition to being a practical and attractive component of a product. Packaging design may be quite effective in marketing green products and encouraging eco-friendly decisions in the context of environmental sustainability. We will look at some of the best practices for developing efficient and appealing green packaging as well as how packaging design may affect customer behavior toward green products.

In order to ascertain the impact of various sustainable package design components on customer purchase and recycling behavior, this article discusses an empirical investigation. According to recent studies, packaging design's aesthetic appeal affects consumer behavior. The findings of this study demonstrate that customer judgments about packaging are mostly focused on visuals, information and appearance which play a minor role. Furthermore, the most useful signals are sustainable form and sustainable information, indicating that these signals are more likely to elicit purchase intent.

### Keywords

Visual Identity, Brand Equity, Dynamic Branding, Rebranding, Tate Gallery

### المخلص

يعد تصميم العبوة أداة اتصال فعالة قد تؤثر على سلوك المستهلك وتفضيله في عملية الشراء، بالإضافة إلى كونه مكوناً عملياً وجذاباً للمنتج، قد يكون تصميم التغليف فعالاً للغاية في تسويق المنتجات المستدامة وتشجيع القرارات الصديقة للبيئة في سياق الاستدامة البيئية، سوف يتم النظر في بعض أفضل الممارسات لتطوير عبوات مستدامة جذابة، بالإضافة إلى كيفية تأثير تصميم التغليف على سلوك العملاء تجاه المنتجات، التي يتم إعادة تدوير، تعد طرق تأثير تصميم العبوات المستدامة المختلفة والعبوات، التي يتم إعادة تدويرها على سلوك المشتري عند إجراء عملية الشراء، حيث إن الجاذبية الجمالية لتصميم العبوات تؤثر على سلوك المستهلك، توضح نتائج هذه الدراسة، أن تأثير العوامل المرئية مثل شكل وصوره العبوة فقط يعتبر تأثيراً ثانوياً، وأن التأثير الأكثر فاعلية هو الشكل المستدام للعبوات والمعلومات المستدامة، لأنها أكثر الإشارات، التي تثير نية الشراء لدى المشتري.

## الكلمات المفتاحية

تصميم التغليف، تطوير التغليف، الاستدامة، سلوك الشراء، سلوك إعادة التدوير.

## Introduction

On average, consumers open further than seven products every day, which are frequently discarded right incontinently after operation. As a result, packaging trash has inexorably increased our environmental footprint and has come to represent the throwaway society. The aesthetic appeal of a package has a significant impact on consumer when making deliberate, sustainable purchases and sorting packaging trash after use, according to exploration that has formerly been conducted. It isn't made clear, however, how these factors affect their gets or how packaging contrivers should apply this knowledge <sup>(1-p33:38)</sup>.

Design in general, it is the process of imagining and planning the production of items, interactive systems, structures, cars, and so on. It is user-centered, which means that users are at the core of the design thinking process. It is concerned with developing solutions for people, tangible objects, or more abstract systems to solve a need or problem, it is a fairly wide notion with many different interpretations depending on the area. It pervades all facets of our life and divides into several subgenres, ranging from packaging design to virtual reality to interface design <sup>(13)</sup>. Consumers are provided with a variety of items packed in various packages throughout the purchasing process, and they must choose which product-packaging combination to purchase. The customer plays a significant part in categorizing the packaging trash after use to make waste processing easier. Recycling packaging trash is made easier the better it is sorted. The aesthetic appeal of a package has a significant impact on the processes of making thoughtful, sustainable purchase decisions and sorting packaging trash after use. Consumers view packaging as favorable when it conveys environmental friendliness before making a purchase <sup>(2-p37)</sup>.

Packaging Graphic Design refers to the appearance of the packaging used to package the Products, which includes the form of the packaging as well as the graphics, pictures, and branding that appear on the packaging. Packaging Intellectual Property refers to the rights to the packaging design. Premises refers to the Supplier's premises. Meaningful packaging that distinguishes the food product and the brand began with the industrialization of printing and paper manufacture in the nineteenth century. Graphic design has gotten increasingly complicated throughout the years. The form, colors, and typography operate as their own code, alerting, attracting, and communicating with the consumer: A product for the premium market will not have the same design as one for a more moderate budget <sup>(14)</sup>.

A structural packaging design is a three-dimensional package that employs creativity, functional simplicity, and industrial design to provide a memorable and pleasurable user experience. A good packaging design should represent your brand and its values, make your product stand out on the shelves, increase the value of your brand, and provide the customer with a memorable unwrapping experience. Rather of employing a commoditized structural design, creating a custom package design may be quite beneficial <sup>(15)</sup>.

Environmental packaging factors undoubtedly affect product selection and assessments, but it is unclear how these factors affect consumers' purchasing decisions and how packaging designers should apply this information. Regarding the second area of attention, recycling and

waste processing of packaging are still seldom taken into consideration throughout development. Recycling holds promise as a way to combat the waste issue, and there are ways to improve packaging's ability to be recycled. However, this is not the most crucial improvement.

This demonstrates the value of researching different packaging choices as well as the significance of packing in the supply chain. The primary purpose of packaging is to preserve the contents of the product, but it also aids in improving the efficiency of the supply chain by grouping tiny items, providing barrier protection, transmitting information, marketing, ensuring security, providing convenience, and controlling portion sizes, among other things.

Expendable and reusable packaging systems are the two types of packaging systems utilized in industries. The decision to employ any packaging system depends on a number of factors, including the kind of delivered product, packaging specifications, packaging goals, and selection criteria. The right packaging system selection can result in considerable cost savings and aid to enhance environmental factors.

### **Reasons for choosing the research problem**

As the terms sustainable and sustainability are very important nowadays. The research is linked to international efforts to preserve the environment, research and develop human activities in order to have less impact on the environment. So, the importance of this study is to measure the extent of consumer awareness of sustainable or recyclable packaging.

### **The problem is determined to answer the following questions:**

- How is sustainable packaging design achieved?
- Does the consumer have sufficient awareness of the idea of sustainability and recycling of packaging?
- What are the advantages that recyclable packaging offers to the consumer?

### **Research importance:**

- The importance of this research is studying the realization of the idea of sustainability.
- Focus on the importance of recycled packaging.
- Studying consumer behavior regarding sustainable or recyclable packaging.
- Consumer opinions of sustainable packaging show that customers are uninformed about the sustainability idea.

### **Research Aims:**

- Demonstrate the importance of sustainability to change consumer behavior.
- Expression the consumer how environmental concerns are becoming more prevalent and encourage them to reuse and recycle things.

### **Research hypotheses**

- Sustainability influence in product and production.
- Sustainability can be achieved in the field of packaging.

- Consumers accept the idea of recycling products.

### Research Methodology:

To verify the impact of sustainable packaging design on recycling and consumption behavior, we conducted an empirical study. A prior study and three main sections form the three parts of the study.

### Literature review

The literature on consumer behavior claims that consumers are conceptually undereducated. Sustainability finds it challenging to differentiate between environmentally friendly and environmentally harmful packaging since it is so tough for them to assess a package's environmental impact. They obviously base their evaluations on package sustainability on material factors. One of the biggest issues for packaging designers is creating sustainable packaging that customers would accept while keeping in mind that a material's durability for consumers does not necessarily match to its real strength. This highlights the significance of packaging that clearly communicates its sustainability and provides an intelligible and believable message on environmental problems. Studies have revealed that the three aspects of the packaging—shape/structure, aesthetics, and packing information—translate eco-friendliness into customer perception. This is displayed in Table 1. It is crucial to ensure consistency between the spoken message and the visual representation when employing such environmental cues; otherwise, it might raise concerns about "green washing." Verbal sustainability statements can draw attention to certain visual components on packaging that contains an eco-friendly component to strengthen its persuasive power<sup>(3-p55-59)</sup>.

<b>Structure / Form</b>	Less Material	Recycled / Recyclable materials	Reusable Package
<b>Graphics</b>	Brown, Green, White	Nature imagery	
<b>Information</b>	Environmental Claims	Environmental logos	Lables From Environmental Organisations

Table (1): Packaging features that convey eco-friendliness<sup>(4-p15)</sup>.

In terms of recycling behavior literature, attributes of packaging design are used to promote or influence recycling behavior. Among these attribute labels, such as recycling; symbols, is the most common approach to enhancing consumer recycling behavior. However, this information does not necessarily turn into reality.

Recycling: Furthermore, the link between sustainable packaging behavior and recycling is essential as sustainability is perceived to mediate recycling behavior. In other words, a package must consider sustainable by an individual before being willing to recycle it. In summary, all studies show that the visual appearance of packaging design influences consumer behavior. We are looking for a link between design and behavior, and in particular are investigating the role of a number of signals targeting purchase intention and recycling behavior. Thus, providing packaging designers with information that can be put to work<sup>(5-p38:40)</sup>.

According to Borgman claim that to make sure of the effect of developing sustainable solutions, he made a study carried out an empirical investigation, packaging and consumer recycling habits. A re-study and two main portions make up the study's three divisions. The first section focuses on how packaging characteristics affect various aspects of purchase and recycling intention. An earlier investigation was conducted to determine the catalysts for this study. The second section tests consumers' purchasing and recycling intents in the real-world setting of the supermarket using the findings from the previous section, for preventing green washing. Verbal sustainability statements can draw attention to certain visual components on packaging that contains an eco-friendly component to strengthen its persuasive power. First, the use of an online rating tool to perform a qualitative exploratory investigation with a small group of 20 respondents (55 years old males). The picture of a water bottle is one of the stimuli, and there are three different types of packaging indicators: Graphic design for the label (graphic), information on sustainability or certification, and appearance and bottle structure (shape). This will enable analysis of certain package design components. Depending on the package criteria, between 8 and 10 designs are created for each of these three groups. Convey to consumer environmental friendliness, see also (Table 1)<sup>(6)</sup>. According to Borgman study, the most neutral and sustainable design will have visual, informational, and formal elements. These are displayed in Figure 1.



Figure (1): Resulting Features of the Graphics, Information and Scheme.

To ascertain which traits from the preliminary research are more prevalent, a combined complete profile analysis was done, there are two options: A sustainable and neutral design, one for each of the three components (graphics, information, and forms).

Figure 2 illustrates the resulting 2x2x2 joint design with its eight variations.



Figure (2): Designs for the Conjoint Analysis Prices are Only Included in the Second Last Question Survey.

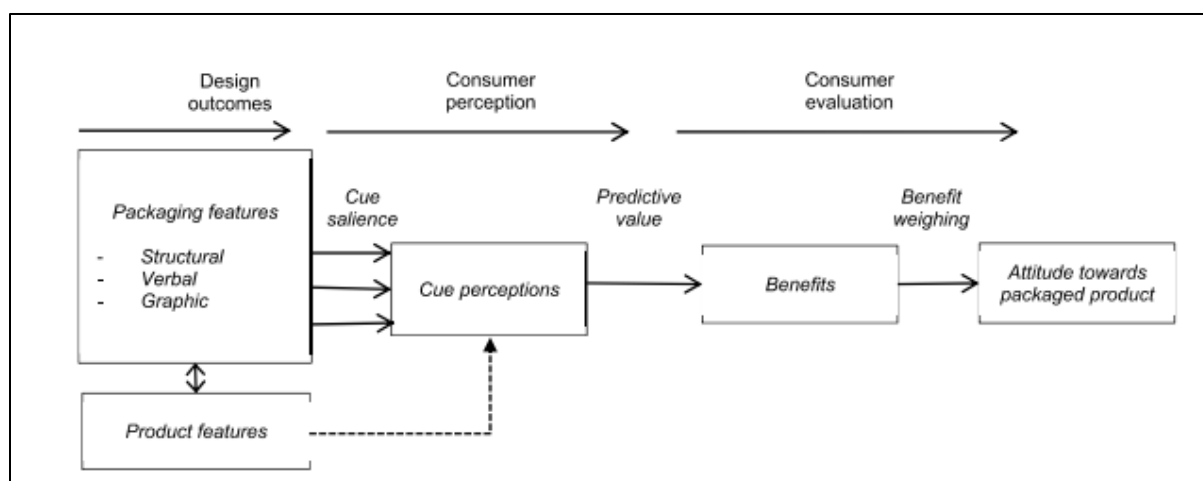
It shows how concern about the aesthetics of water bottles affects customer behavior. The characteristics from the preliminary study that were most commonly seen were determined using a combined complete profile analysis. The study uses a 2x2x2 joint design with eight variants and an online poll to rank eight bottles based on their propensity to be purchased, propensity to be recycled, propensity to be attractive, propensity to be of high manufacturing quality, and propensity to be durable. Respondents were asked to rank the bottles on a scale of one to eight, with one being the highest and eight is the lowest. Additionally, respondents were tasked with rating the significance of the 100 points assigned to each water bottle feature, including label color and design, bottle size and shape, strength, cost, manufacturer reliability, and other aspects. The survey found that one popular strategy for encouraging consumer recycling is to provide these facts on package information. (5- p16:20)

### Consumer Behaviors:

While businesses must work to offer more environmentally friendly solutions and governments must improve infrastructure to support these eco-friendly packaging options, consumers also must do their role too. Despite the fact that most shoppers are environmentally conscious, many still aren't aware of the advantages of eco-friendly packaging and are unwilling to pay more for it. Businesses need to do more to inform customers about the advantages of eco-friendly packaging and the need to abandon conventional packaging (6- p100:112).

Educating consumers on proper disposal methods for eco-friendly packaging is another problem. When it comes to recyclable food packaging, we briefly touched on this subject before, but consumers need to be aware of the harm they create when they treat their garbage inappropriately. No matter how tough or environmentally friendly the packaging is, consumers still need to dispose it correctly, for it to be useful. Yes, biodegradable packaging can decompose more quickly than conventional packaging and is made to leave no toxic residues, but it doesn't imply that people should discard their rubbish carelessly.

## Components of Sustainable packaging:

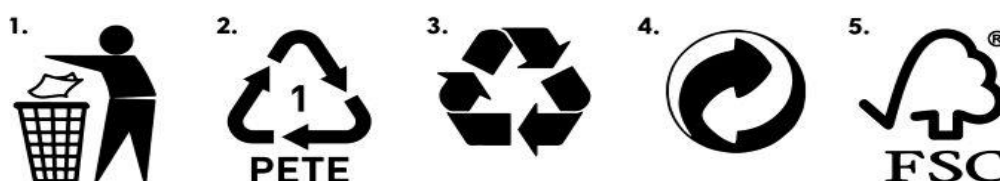
Figure 3: (Effect of elements of packaging on consumer attitudes towards the product)<sup>(9 - p5)</sup>.

When choosing a product, people frequently concentrate on the sustainable features that are visible to them plainly. Consumers also heavily rely on material or structural signals to influence how they feel about packaging, but the holistic approach is unable to explain how certain cues influence various consumer behaviors. This strategy also highlights how poorly informed customers are about sustainability and sustainable packaging, and how inconsistent their opinions of green packaging are, for example, overemphasizing some elements of sustainability while neglecting others. Overemphasizing can be seen, for instance, in the expense of transportation and recycling.

Packaging can make people consider sustainability. Therefore, if implemented properly, green packaging components might influence consumers' purchasing decisions favorably. Although container redesign is encouraged by sustainability, it is crucial to emphasize the main consumer advantages when making purchases. If consumers do not have a comprehensive knowledge of the many components of green packaging, for example, first consumer research may have certain biases and misinterpretations. This may have an impact on on-label claims that fail to convey the appropriate message to consumers. <sup>(10 - p516:525)</sup>

**Strategies to encourage consumer sustainable behavior:**

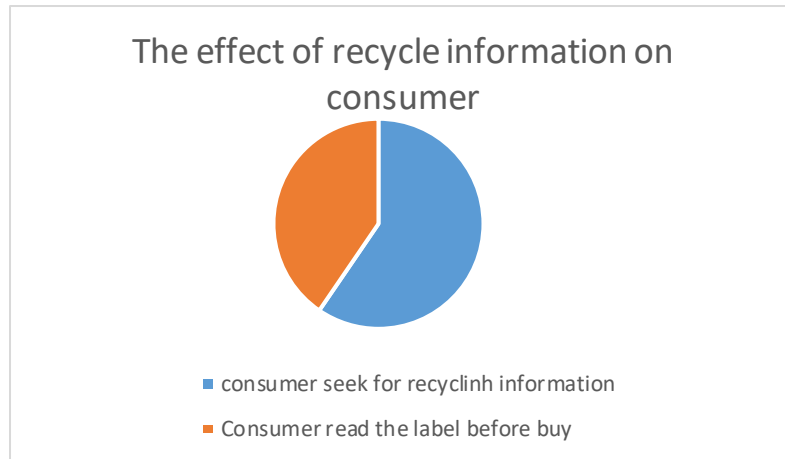
The most popular strategy for encouraging consumer recycling behavior is to provide these characteristics on package information. This knowledge does not necessarily transfer into recycling, though. In order to choose a course of therapy, households typically do not consult the information on the container.

Figure (4): a Types of Recycle Packaging with Corresponding Symbols.<sup>(11)</sup>



According to Recycling Partnership national research was conducted in June 2021 to look at consumer views and behaviors around recycling. The study looked at how well consumer understood and how much consumers trusted the recycling information on product labels. one-on-one interviews with a representative sample of survey respondents were conducted as part of the research to better understand consumers' thought processes when they encounter recycling information on product labels and how it affects their recycling activities and behavior.

The recycling information that may be found on product labels is largely relied upon by consumers.



Consumers trust the recycling information they find on product labels, so when they find out that information is unreliable—that is, when a product claims to be recyclable but isn't actually being recycled into something new—they feel fooled and sometimes discouraged from participating in recycling at all. In order to better understand consumers' thought processes as they encountered recycling information on product labels and the impact that information had on their recycling behavior, the survey was followed in late June 2021 by 15 individuals' in-depth interviews conducted virtually among a cross-section of survey respondents. <sup>(12)</sup>

**An online questionnaire made to examine the extent of consumers' awareness in Egypt about sustainable packaging and whether it affects the purchasing decision:**

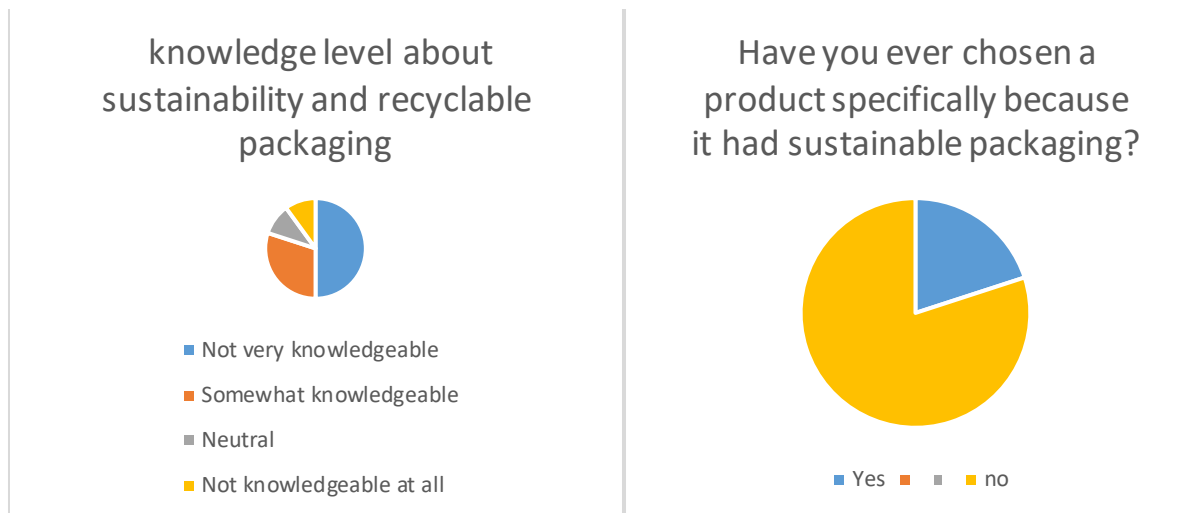
An online group of 50 consumers, **Gander:** Female 61% - Male: 38%, **age range:** from 25 to 55 year.





They were asked about Nestle bottle and its usual everyday use for consumer, and if they know if it's recyclable or not.

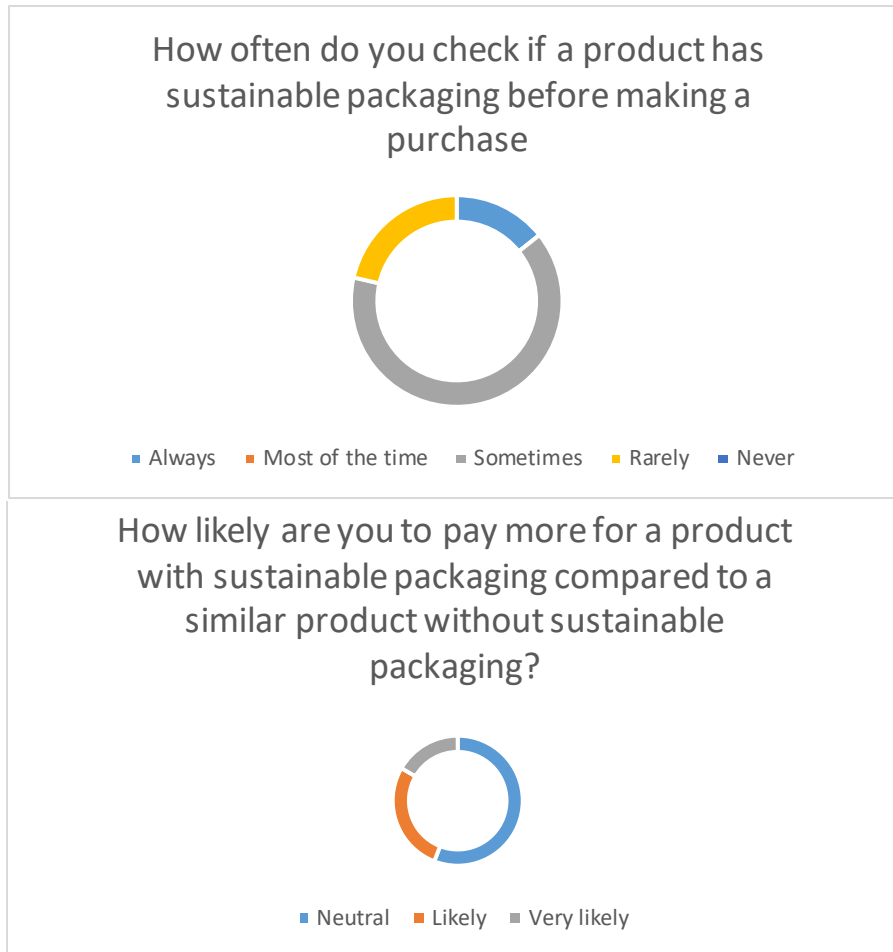
Only 10 out of 50 known that bottle can be recyclable.



What suggestions do you have for companies to improve their sustainable packaging efforts?

Some answers:

- More focus on the design.
- Cover
- Cancel the use of plastic in vegetables and fruits packaging.
- Make more effort in describing the importance of sustainable packaging for the market.
- Experience
- In fact, I do not know exactly how can I help, but what I want from those companies is to do more efforts to solve this issue.
- Quality
- Good design and good material
- I don't know
- To enhance the environment materials.
- To save the earth
- If it is recyclable or not
- Reuse concept
- Awareness campaigns about the idea of sustainable packaging



## Discussion

The consumer in Egypt has a little awareness of sustainable or recycled packaging, so more can be done to increase consumer awareness of the importance of sustainability and to use the signs that these products are recycled, so the Minister of the Environment of Egypt in various ways has to encourage investment in the implementation and realization of the idea of sustainability in the production of packaging and transforming waste into recirculation. Egypt is expanding in this area in order to maximize the benefits of waste, reduce rejections as much as possible, and reduce waste from improper management of packaging waste, when there are no significant factors present, such as higher pricing or a less amount of the product, consumers do not prefer environmentally friendly items. If there is no information to remind them of it, such as labels on the goods, many customers fail to realize the connection between their purchasing choice and the ensuing environmental effects. Other factors can include a lack of choices on the market or customers' inability to differentiate between different product kinds with packaging that is more or less environmentally friendly.

## Advantages of sustainable packaging throughout the purchase process

- Packaging aids consumers in determining a product's promise and whether it fulfills their goals (such as sustainability goals).

- Consumers may be drawn to sustainable packaging because they can associate it with themselves and maintain a green(er) self-identity.
- It is well recognized that brand identity includes customer advantages for self-expression. For example, excessive packaging might harm the reputation of the green brand.
- At the moment of sale, 50% to 70% of decisions are made, and some studies have suggested that this number may even be higher.
- Given that the typical consumer takes 12 seconds to decide whether to make a purchase, sustainable packaging must stand out at the point of sale. Consumers find it challenging to recognize sustainable packaging.
- Green confidence may be generated via sustainable packaging. This may be advantageous since trust affects how consumers behave. For instance, it may encourage brand loyalty.
- When people have a strong relationship to a brand, they are more prepared to pay for it. <sup>(13)</sup>

### Results:

In order to close the gap between packaging design and consumer behavior throughout the purchasing process, this essay was written about recycling eco-friendly packaging. Experimental research was carried out to ascertain the impact of particular sustainable package design components on customer behavior. According to research findings, customer judgments concerning packaging are mostly influenced by graphic features, with information about the package's strength and design playing a smaller role. Additionally, the findings show that packaging containing visual elements relevant to sustainability, such as sustainability information, increases in attractiveness, buy intention, recycling intention, and sustainability awareness. A sustainable look is chosen in the cases of attractiveness, buying intent, and perception of sustainability. The findings on recycling behavior showed that people regularly saw packaging with images that featured logos or language to encourage recycling or had a greener appearance as being more sustainable, and respondents were generally pleased about it.

### Recommendations:

1. Conduct more research and studies on consumer behavior and their acceptance of purchasing environmentally friendly or recycled package.
2. It encourages companies and factories to use sustainable raw materials and produce environmentally friendly packages to conserve public resources.
3. Designers must study the factors influencing the behavior of the buyer that increase the transfer of the idea of sustainable packaging through design.

### Foreign References:

1. Prakash, Gyan & Pathak, Pramod. Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation, Research Article, Journal of Cleaner Production, 2017.

2. Kapse, Mahajan, Hudnurkar, Ambekar & Hiremath, Sustainable Packaging Aesthetic, Vol. 17,2023.
3. Magnie, Lise & Schuurmans, Jan. Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern, 55:59,2015.
4. Borgman, Iris THE INFLUENCE OF PACKAGING DESIGN FEATURES ON CONSUMERS' PURCHASING & RECYCLING BEHAVIOUR, 2018.
5. Karearea, Sakshi, SUSTAINABLE PACKAGING: A CONSUMER PERSPECTIVE, 2023
6. Mulder-, Maaïke & de Keijl, Bjorn & Borgman, Iris. f packaging design features on consumers' purchasing and recycling behavior identified which packaging attributes are perceived as barriers to recycling, 2018.
7. Rompay, Thomas Van & Pruyn, Ad. When visual product features speak the same language: Effects of shape - typeface congruence on brand perception and price expectations, Research Article, Journal of Product Innovation Management, 2011.
8. Rokka, J. and Uusitalo, L. Preference for green packaging in consumer product choices – Do consumers care? International Journal of Consumer Studies 32, 2018
9. Netherlands Institute for Sustainable Packaging, Sustainable consumer behavior and packaging, 2022

#### Websites:

10. <https://www.designweek.co.uk/issues/8-14-august-2022/is-it-time-for-a-revolution-in-packaging-symbols/> (accessed August 23, 2023).
11. <https://recyclingpartnership.org/data/> (accessed August 28, 2023).
12. Alpha Commerce, Sustainable Packaging Insights: Eco-Revenue, Research Article, <https://theecobahn.com/packaging/sustainable-packaging-insights-eco-revenue/>, (accessed August 20, 2023).
13. <https://www.johnsbyrne.com/blog/structured-packaging-adding-value-avoiding-commoditized-packaging/>, (accessed September 30, 2023).
14. <https://www.alimentarium.org/en/fact-sheet/packaging-graphic-design>, (accessed September 30, 2023).
15. <https://www.johnsbyrne.com/blog/structured-packaging-adding-value-avoiding-commoditized-packaging/>, (accessed September 30, 2023).