POS Displays in a Circular Economy

An Empirical Investigation of German Generation Z's Perception of Circular-Designed Confectionery POS Displays and the Impact on their Purchase Intention and Willingness-to-Pay of Confectionery in Germany

Niklas Schuppler

152122108

Dissertation written under the supervision of Miguel Rita Fontes

Dissertation submitted in partial fulfillment of requirements for the International MSc in Management with Specialization in Marketing at the Católica Lisbon School of Business and Economics, 30th of May 2024

POS Displays in a Circular Economy

An Empirical Investigation of German Generation Z's Perception of Circular-Designed Confectionery POS Displays and the Impact on their Purchase Intention and Willingness-to-Pay of Confectionery in Germany

Niklas Schuppler

Supervisor: Miguel Rita Fontes

ABSTRACT

The current economy is facing significant challenges emerging from unsustainable economic models, primarily driven by waste generation. A major contributor is the FMCG industry, where single-use point-of-sale displays play a notable role in waste production. Despite their short service life, point-of-sale displays are essential for sales promotion.

This dissertation examines the integration of circular economy principles into point-of-sale marketing, focusing on confectionery displays in the German FMCG sector, emphasizing the prevention of waste, the circulation of materials and the regeneration of nature. Generation Z is the target group of this study based on their growing purchasing power and environmental awareness. Using the stimulus-organism-response model, this research investigates the influence of stimuli (point-of-sale display attributes, the confectionery manufacturer's environmental record and Gen Z's environmental concern) on Generation Z's perceived sustainability of a circular-designed point-of-sale display, and its impact on their purchase intention as well as willingness-to-pay for confectionery promoted in circular-designed point-of-sale displays.

A mixed methods approach was used, starting with qualitative interviews for initial insights, followed by a quantitative survey. Key findings show that point-of-sale display attributes (i.e., circular materials, natural colors, informative content), manufacturer's environmental record and a higher level of environmental concern positively influence Gen Z's perceived sustainability of a circular-designed confectionery point-of-sale display. The direct influence of perceived sustainability on purchase intention and willingness-to-pay depends on consumers' circular economy familiarity. The managerial implications highlight the importance of launching appealing and informative circular-designed point-of-sale displays, while confectionery manufacturers must increase transparency and educate consumers about circular economy.

Keywords: circular economy, fmcg, confectionery, point-of-sales marketing, consumer behavior, SOR model, Generation Z

POS Displays in a Circular Economy

An Empirical Investigation of German Generation Z's Perception of Circular-Designed Confectionery POS Displays and the Impact on their Purchase Intention and Willingness-to-Pay of Confectionery in Germany

Niklas Schuppler
Supervisor: Miguel Rita Fontes

RESUMO

A economia atual enfrenta desafios significativos devido a modelos económicos insustentáveis, impulsionados pela geração de resíduos. A indústria de bens de grande consumo (FMCG) contribui consideravelmente, especialmente através de expositores descartáveis em locais de venda. Apesar da sua curta vida útil, estes expositores são essenciais para a promoção de vendas.

Esta dissertação analisa a integração dos princípios da economia circular no marketing em locais de venda, focando-se nos expositores de produtos de pastelaria no setor de FMCG na Alemanha, salientando a prevenção de resíduos, a circulação de materiais e a regeneração da natureza. A Geração Z, escolhida pelo seu crescente poder de compra e consciência ambiental, é o grupo-alvo deste estudo. Utilizando o modelo estímulo-organismo-resposta, o estudo investiga a influência dos atributos dos expositores, o histórico ambiental dos fabricantes e a preocupação ambiental da Geração Z na perceção de sustentabilidade dos expositores de design circular, bem como o impacto na intenção de compra e disposição para pagar por produtos promovidos nestes expositores.

A abordagem de métodos mistos incluiu entrevistas qualitativas e um questionário quantitativo. Os resultados mostram que os atributos dos expositores, o histórico ambiental dos fabricantes e a preocupação ambiental influenciam positivamente a perceção de sustentabilidade pela Geração Z. A influência desta perceção na intenção de compra e disposição para pagar depende da familiaridade dos consumidores com a economia circular. As implicações para a gestão destacam a importância de expositores informativos e apelativos e a necessidade de maior transparência e educação sobre economia circular por parte dos fabricantes.

Palavras-chave: economia circular, fmcg, confeitaria, marketing de ponto-de-venda, comportamento do consumidor, modelo SOR, Geração Z

Table of Contents

List of Figures

List of Tables

List of Abbreviations

3 R's	Reduce, Reuse, Recycle
9 R's	Recover, Recycle, Repurpose, Remanufacture, Refurbish, Repair, Re-Use, Reduce, Rethink
ABS	Acrylnitril-Butadien-Styrol-Copolymer
CE	Circular Economy
CMER	Confectionery Manufacturer's Environmental Record
DV	Dependent Variable
EC	Environmental Concern
EU	European Union
FMCG	Fast Moving Consumer Good
Gen Z	Generation Z
IV	Independent Variable
KMO	Kaiser-Meyer-Olkin
KrWG	Kreislaufwirtschaftsgesetz
LCA	Life Cycle Assessment
LE	Linear Economy
MDF	Medium-Density Fiberboard
PI	Purchase Intention
PLC	Product Life Cycle
POS	Point of Sale
PS	Perceived Sustainability
SOR	Stimulus-Organism-Response
WTP	Willingness-to-Pay
YOY	Year-over-Year

List of Symbols

α	Significance Level
R^2	Adjusted Coefficient of Determination
β	Unstandardized Coefficient
F	F-value
p_1	Model Significance
p_2	Independent Variable Significance
t	t-value

1 INTRODUCTION

1.1 Relevance

Today's world is facing serious challenges in which the economic model of human civilization is not sustainable, and the most responsible reason is waste (Lewis, 2022). According to Zasche (2018), plastic waste and non-reusable materials, caused by products and their packaging, are major environmental issues worldwide. This is especially a problem in the Fast-Moving-Consumer-Goods (FMCGs) industry, ejecting thirty percent of total human-produced greenhouse gas emissions (Li et al., 2022). Besides consumer goods packaging waste at the end of the product life cycle (PLC) (Boesen, 2019), the amount of waste, resulting from POS marketing initiatives such as point-of-sale (POS) displays, wobblers and posters, plays a significant role that should not be neglected (Hietler et al., 2020). POS displays, also known as secondary placements, are a special form of sales promotion often located near, on or next to a checkout area. Various examples are enclosed in *Appendix A*. They aim to draw customers' attention to products, which may be new or special offers, and are deployed to promote special occasions. Every year, millions of POS displays are produced, assembled, equipped, and delivered. Currently, they are made almost exclusively from corrugated cardboard and plastic. A common POS display requires between five to ten kilograms of corrugated cardboard, which is disposed of after a single use. On average, the service time is two weeks (ibid.).

The emerging waste issue can be mitigated by introducing the concept of a circular economy (CE) for POS materials. Nowadays, an increasing number of FMCG companies are aiming to reduce their environmental impact by leaving the current process of a one-way linear economy (LE) (Lewis, 2022). In contrast to a LE, waste production and sustainability are critical factors within a CE (Oke et al., 2020). Lewis (2022) defines a CE by three aspects: (1) elimination of waste and pollution, (2) circularity of materials and products, as well as the (3) regeneration of nature. Therefore, current POS marketing practices such as the usage of common POS displays need to be rethought by applying the principles of a CE maintaining materials in the loop without loss of value and minimizing negative environmental impact (MacArthur, 2013). German confectionery manufacturers have recognized these problems and aim to strengthen the transition to a CE by raising the percentage of recycled content and the recyclability (Intersnack, 2022; Lindt & Sprüngli, 2022; Ritter Sport, 2022; Stotz et al., 2017). Nonetheless, this shift is not a sprint, it is a marathon where the balancing act between sales revenue, cost, and future viability is considered a major challenge for organizations in the upcoming years.

With a total sales revenue of 18.2 billion euros the German confectionery industry is ranked among the leaders in Europe (Ahrens, 2024b; Statista, 2023a) alongside with the growing purchasing power of Generation Z (Gen Z) presents a unique opportunity to explore the Generation Z's consumer behavior.

1.2 Problem Statement, Research Objective & Research Questions

In today's society a shift in consumer behavior, in particular among young consumers, towards more sustainable practices can be observed (Bar Am et al., 2023) affecting the future decision-making processes of businesses within the FMCG sector. According to Kotler (2011), consumer behavior can be influenced by managing the four Ps: product, price, place, and promotion. In this study the focus lies on sales promotions, more specifically on POS displays filled with confectionery because sweets and salty snacks are most often promoted in in-store displays (Kolbrück, 2023). Literature indicates that sustainable practices influence consumer perceptions of quality, convenience, price, and purchase intention (PI) (Magnier & Crié, 2015; Magnier & Schoormans, 2017; Prakash & Pathak, 2017; Scott & Vigar-Ellis, 2014). However, for a sustainable change in consumer behavior, consumers need help to move from intention to action (White et al., 2019).

Generation Z, which is this study's target group, will be the largest customer base by 2026 (Gomes et al., 2023; Meola, 2023). They are willing-to-pay a price premium for environmentally-friendly products and are influenced by an organization's environmental record resulting in the conviction to purchase products from brands with strong environmental efforts (PwC, 2022). However, consumers often do not know if a product is sustainably sourced, produced, and/or packaged. Moreover, previous research has indicated that most Gen Zers are not aware of the concept of CE (Schuppler & Saldsieder, 2023). Addressing this lack of knowledge, confectionery manufacturers need to share more targeted information for consumers, because without the participation of individuals, a successful implementation of a CE will not be possible in Germany (ibid.). Consequently, Franco and Cicatiello (2019), and Xuan (2024) discuss the increasing environmental awareness within the FMCG industry from consumers, highlighting that sustainable production and consumption is necessary.

From a retailer perspective, Kolbrück (2023) highlights that one third of retailers place importance on sustainable in-store display solutions. Various studies explored the impact of sustainability labels (Rejman, 2019), in-store technology (Jäger & Weber, 2020), and the effect of sales promotions, such as price discounts and add-ons, on the PI of German consumers

(McColl et al., 2020; Santini et al., 2015). However, there is a lack of research combining CE and POS displays as well as their impact on consumers perception, PI, and willingness-to-pay (WTP).

The objective of this research is to provide a better understanding of the German Gen Z's perceived sustainability (PS) of circular-designed confectionery POS displays and how these impact their PI and WTP of confectionery. To provide these consumer insights, the following research questions can be stated:

- **RQ_1:** Does German Gen Z care about the environmental-friendliness of confectionery POS displays?
- **RQ_2:** Do circular-designed POS display attributes, confectionery manufacturer's environmental record (CMER), and German Gen Z's level of environmental concern (EC) influence German Gen Z's PS of a circular-designed POS display?
- **RQ_3:** Does German Gen Z have a greater PI towards confectionery promoted in a circular-designed POS display and are they willing-to-pay a price premium for products placed in such a POS display?

This research does not address the production of circular-designed POS displays as well as specific information about the material structure. This study covers the point of view of German Gen Z, presenting insights if and how circular-designed POS displays impact Gen Z's PS, PI, and WTP of confectionery placed in circular-designed POS displays within German supermarkets.

To improve readability, this document does not contain the masculine and feminine forms. The masculine personal pronouns and nouns always refer to the feminine form as well.

2 THE CONCEPT OF CIRCULAR ECONOMY

2.1 Circular Economy Framework

Significant challenges such as waste from unsustainable production, the loss of natural habitats, and the overconsumption of raw materials (Ripple et al., 2017) mean that current research among academics and practitioners is increasingly advocating the transition to a CE as a way to solve many major challenges (Howard-Grenville et al., 2019; Murray et al., 2017). While Pearce (1990) describes the term CE as an idea of an economic system in which existing materials are recycled, shared, reused, refurbished, or repaired as long as possible, Kirchherr et al. (2017) and Sterr (2003) define a CE as a theory which reduces negative ecological impacts while increasing the circularity of material flows, by sustaining them at the highest level of quality, and utility in the economy. This broad range of complex challenges has led to a substantial, cross-disciplinary literature on CE, attracting academic attention in domains of business models for CE (Centobelli et al., 2020; Jabbour et al., 2019; Pieroni et al., 2019) as well as the adoption of CE in micro-, meso-, and macro-economic dimensions (Ghisellini et al., 2016; Kristensen, 2020). Regardless, a lack of in-depth reflection on the real-world application and consumer perception analysis is evident in most of these reviews (Dzhengiz et al., 2023).

The most common frameworks of a CE are the R frameworks used as a core principle (Kirchherr et al., 2017). Today, these frameworks exist with varying numbers of Rs ranging from three R's (reuse, reduce, recycle) (Brennan et al., 2015; Ghisellini et al., 2016) to nine R's visualized in *Figure 1* (Potting et al., 2017) displaying the multifaced concept of a CE and its different steps within the production chain in order of priority to increase circularity.

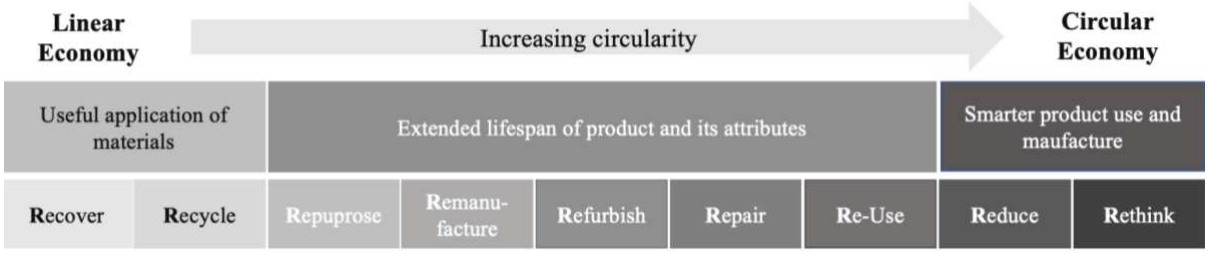


***Figure 1**: 9R Framework of Circular Approaches. Adapted from Potting et al. (2017). Own Illustration.*

While Germany is still at the beginning of the transformation to a CE, the concept has received increased attention in society and within businesses (ASA et al., 2020). Schally (2020) states that a successful transition from a LE to a CE demands assistance from various actors within the EU, such as the society, regional and local authorities, manufacturers as well as non-

governmental organizations. An overview of legislative frameworks and political regulations can be found in *Appendix B*. Overall, a transition to a CE, an economy with controlled resource consumption as well as fully recyclable materials, not only result in ecological benefits, but also strengthens the competitiveness of the economy.

2.2 Opportunities & Challenges

The transition to a CE holds significant opportunities for material recovery and sustainable growth by decoupling economic growth from resource consumption. This provides a better future for the economy, and reduces environmental impact (MacArthur, 2013). Hu et al. (2022) and Wilts (2017) indicate that this closed-loop system makes products more affordable in the long term due to lower production costs, creates new jobs, and enhances consumer satisfaction. For Chauhan et al. (2022) digital technologies (i.e., Internet of Things, blockchain, and artificial intelligence) play a pivotal role in planning a CE model. Despite its fast-moving, high-volume, and low-cost products, the FMCG industry offers many opportunities to implement CE practices. So far, researchers have studied intrinsic and extrinsic product attributes in terms of CE, but not yet POS marketing initiatives such as POS displays. Currently, 80 percent of the materials used are discarded, while 18 percent are recovered for decomposition, and two percent for reuse. After a successful transition, enterprises will be independent of resource constraints and raw material price fluctuations allowing effective production (MacArthur, 2013).

The shift also faces societal, political, and technological challenges, requiring coordinated regulatory frameworks for R&D, product design as well as waste management. In addition, knowledge sharing and consumer education are necessary to overcome the limitations of material recycling (EEA, 2021; European Commission, 2016). MacArthur (2013) mandates FMCG manufacturers to take the responsibility to leave the actual processes towards bio-based loops to make products and packaging a restorative instead of an exploitive purpose. Walker et al. (2021) goes further by showing that if firms would only supply what can be consumed, reducing biological waste, keeping materials within the loop, and finding ways to reintroduce materials safely into these cycle, it will allow businesses to leverage untapped potential resulting in higher net results (McKinsey et al., 2016).

Overall, humans' knowledge and consumption behavior play a key role in the transition to a CE (Lemke & Nessel, 2021). Their behavior can be seen as a challenge as well as an opportunity. Therefore, consumer perception of circular-designed POS displays, their PI, and WTP will be examined in Chapter 5.

3 POS MARKETING

3.1 Definition of POS Marketing

POS marketing comprises the use of information and communication-related instruments in stationary or virtual retail outlets. For stationary retail, this includes not only the training and performance of sales pitches but also all initiatives relating to the structure and arrangement of the store layout, the qualitative and quantitative allocation of space, the presentation of goods as well as the store atmosphere and environment. These design options can be categorized under the term in-store marketing (Liebmann et al., 2008).

POS marketing also includes sales promotions and event marketing activities that are not initiated and financed by retailers, but by the manufacturer and are intended to contribute to the brand management of the good (i.e. displays, flyers, advertising, material). With retail promotions, such as the availability of displays or granting discounts, the manufacturer initially addresses the retailer to increase the likelihood of its goods being listed. These measures, which are directly aimed at the retailer and indirectly targeted at consumers, should increase consumer awareness of the brand through favorable prices or displays. Gedenk (2004) therefore suggests summarizing retail- and consumer-promotions (i.e. competitions, product samples, product giveaways) under the term consumer-oriented promotions and categorizes price and non-price promotions.

From the consumer's point of view, POS marketing should, depending on the shopping objectives (utilitarian or hedonic motives), contribute to increasing shopping efficiency, subjectively perceived shopping convenience and shopping experience (Babin et al., 1994).

3.2 The Role of POS Displays

POS marketing activities are worth hundreds of millions of Euros for European FMCG manufacturers every year (Horstmann, 2017). The use of POS displays is linked to non-price promotion instruments (Gedenk, 2002) and is the most common activity within POS marketing (Hwang & Thomadsen, 2015). It means placing a product in a high traffic store location alongside its usual position on the shelf (Havemann, 2014). According to Tellis (1998), store location can be used to characterize different types of displays. They can be divided into shop front and rear, secondary location, shelf as well as front and rear end-cap (Els & Campo, 2011;

Han et al., 2022). Due the research's scope the in-store positioning and different types/formats of POS displays are not investigated in this research.

A POS display is also seen as indirect packaging (VDP, 2023) aiming to attract the shopper's attention to drive impulse buying and brand switching (Drèze et al., 1995). They are crucial in product protection, logistical efficiency, and sales promotion. Especially within grocery stores, wherein a significant number of purchases is not planned, POS displays drive sales. Experts believe that 90 percent of all purchasing decisions are made unconsciously (ibid.), and 75 percent are made in-store (Horstmann, 2017; Sarma, 2014). According to Neff (2008), 24 percent of total unplanned purchases made were influenced by POS displays. The use of in-store displays has a significant effect even without price discount (ibid.). Special offers and optimal product combinations, such as the usage of complementary products, are particularly effective and inspiring (Simmons, 2023). In addition to a large selection of colors, shapes, and sizes, POS displays can also be interactive. According to a study by Bormann and Gordon, POS displays are important for 90 percent of retailers wherefrom most of them see the usage of POS displays as a growing trend (Kolbrück, 2023). On the opposite, even though POS displays have a high view-buy conversion, only three percent of the shoppers remember a specific POS display (Schramm-Klein et al., 2013). For supermarket retailers, sales, turnover, and earnings make secondary placements attractive. Whereas these displays create an opportunity for manufacturers as the usage of in-store displays support new product entries in which no listing is required (Horstmann & Lingenfelder, 2015). However, simple handling is very important to retailers, followed by attractive display design. For one third of retailers the topic of sustainable POS displays is increasingly relevant (Kolbrück, 2023).

POS displays are usually produced from corrugated cardboard or paperboard and have a service life of around two weeks. To produce these displays, certain quantities of corrugated cardboard or cardboard packaging are required to ensure stability, especially for heavy products. For particularly heavy products, the disposable displays are sometimes additionally reinforced with plastic. Furthermore, protective devices made of corrugated cardboard or cardboard boxes are used for transportation. After the promotion the display must be disposed of in the retail stores (Hietler et al., 2020).

Most frequently chocolate products (27%) and salty snacks (26%) are promoted in POS displays, followed by energy drinks (14%), and soft drinks (10%) (Kolbrück, 2023). Within the

secondary placement world at Edeka and Rewe[1], Ferrero is the retail winner (25%), ahead of Lorenz (20%), and Coca-Cola (16%). Brand icons such as Lindt and Red Bull are completely left behind. The number of POS displays for confectionery within a store shows seasonal fluctuations with peaks during Easter and Christmas time (ibid).

3.3 Sustainable POS Displays

Many display and packaging manufacturers are currently asking themselves the question of how the POS can be more sustainable without sacrificing eye-catching sales promotions, due to increasing consumer EC, and political pressure obliging companies to operate sustainably (Boße, 2021). Since 2019, the German Packaging Act (VerpackG) legally obliges brand manufacturers and retailers to promote recycling and thus protect the environment in line with extended product responsibility. Considering the entire value chain, POS displays always leave an ecological footprint – from production to transportation and disposal (Ließ, 2021).

However, displayers can offer FMCG companies a variety of POS displays following the principles of a CE to avoid waste and costs right from the start. A CE refers to the process of closing the loop on the PLC and its packaging, specifically the POS display. POS displays are often regarded to be items that are thrown away or recycled once a product is bought, presenting a particular opportunity for a circular-designed innovation. Therefore, the usage of materials right from the development stage as a material-optimized display design is a criterion for saving costs and materials, thus securing orders (Nägele, 2021). Based on the requirements and purpose of the POS display, various materials such as paper, wood, acrylic, aluminum, plastic or various materials in combination can be chosen in the production phase (Seitel Display, n.d.).

To leave the current linear process, confectionery manufacturers can either focus on using circular materials (see *Chapter 3.3.1)* or purchasing a permanent display (see *Chapter 3.3.2)* which can be individualized for every campaign by using decoration.

3.3.1 Circular-designed Single-Use POS Displays

Single-use POS displays are cost-efficient in the short-term and their design can be fully optimized for one campaign as they are only used once. However, they usually consist of a larger number of individual parts and are disposed after two weeks (Hietler et al., 2020).

[1] Edeka and Rewe are among the leading German food retailers with market shares of 25% and 21% respectively.

Considering the circular approach a single-use POS display can be optimized by using circular materials such as FSC® certified paper or biodegradable materials.

3.3.1.1 FSC® Certified Paper-based POS Displays

POS displays based on FSC® certified paper are currently already visible in supermarkets. The paper, the base material of the corrugated cardboard material cycle, originates from forests that are sustainably managed in accordance with FSC® certification. This means that mainly broken and thinned wood is used for paper production. The majority of the paper used to produce corrugated cardboard in Germany consists of around 80 percent recycled material such as waste paper, cardboard, and used corrugated cardboard. The proportion of virgin fibers, on the other hand, is only 20 percent and declining (Schumacher Packaging, 2019). The glue, based on corn, wheat or potato starch, used to bind smooth and corrugated paper sheets is plant-based. This type of POS display has a mono-material advantage, as it consists of only one substance, making it easy to dispose of. Due to its optimal recyclability, cardboard ensures that it remains a popular commodity in the long term. Nonetheless, the loss of material value through recycling must not be neglected (ibid.).

3.3.1.2 Biodegradable Bio-based POS Display

Biodegradable materials “decompose easily after disposal under the action of microorganisms” (Nicasio, 2021, no pagination) and are therefore an alternative to the use of recyclable materials. If a POS display consists of biodegradable materials, it must be considered as a whole, including the inks, adhesives, etc. used. The most known biodegradable material is grass paper, which is made from grass as well as wood. In the context of this study, confectionery manufacturers can incorporate plant seeds into the grass paper, and after the usage of the POS display, depending on the printing, it can be decomposed completely in the soil. Overall, grass paper is a less costly alternative supporting the transition towards CE (Mr. Flexx, n.d. a).

3.3.2 Permanent POS displays

Instead of purchasing a single-use POS display, confectionery manufacturers can implement multi-use POS displays with neutral printing allowing usage for several campaigns, contribute to sustainability (Hietler et al., 2020; Nägele, 2021). A reusable POS displays saves between 400 to 600 kg CO_{2eq} compared to a single-use POS display. This saving can be increased with less branding. In addition, using reusable displays reduces the consumption of cartons by around 60 percent. In contrast to single-use displays, multi-use displays can be produced in only three parts (tray design, base, crowner). They are more stable, break-resistant, and protect

the products better which is also an advantage for transportation reducing protective material required. In the short-term these display systems are more expensive, but more cost-efficient over time (Hietler et al., 2020). The following subsections discuss two different materials that can be used for constructing permanent POS displays.

3.3.2.1 Medium-Density Fibreboard (MDF) POS Displays

MDF is made from soft- or hardwood and is used in construction, furniture production, and similar applications. The sheets are flat boards in various thicknesses, which can be processed using conventional woodworking tools (Dale, 2023). As a POS display, MDF combines many features: it is light, stable, and resilient. Display manufacturers often offer this type of display as a plug-in system with wheels, making it assembly tool-free. Printing on the MDF sheets is challenging, however, using a white undercoat ensures that digital printing is colorfast (Wasi Displays, 2022).

3.3.2.2 Acrylnitril-Butadien-Styrol-Copolymer (ABS) Display

ABS is a cheap serviceable engineering plastic that is easy to paint, due to its high polarity. Therefore, it is used in aesthetic plastic products (Nießner & Jahnke, 2020). ABS is durable and characterized as a premium plastic (e.g. used for LEGO bricks) wherefore it can also be implemented at the POS. This reusable display solution could reduce CO_2 emissions and saves cardboard by over 80 percent (Mr. Flexx, n.d. b).

Collectively, driven by consumers' growing environmental awareness and governments' more pressing sustainability objectives, the evolving landscape of POS displays represents a shift in the industry. Implementing these before-mentioned eco-friendly solutions reduces environmental impact and ensures a positive contribution from display manufacturers to the future of retail and global sustainability.

4 GERMAN CONFECTIONERY LANDSCAPE

4.1 German Confectionery Industry

With almost 55,000 employees, a total sales revenue of around 18.2 billion euros (+12,2% YOY), export sales of 9.2 billion euros and a production value of 9.17 billion euros, the German confectionery industry is ranked among the leaders in Europe (Ahrens, 2024b; Statista, 2023a) with a stronger growth rate compared to the European market (see Appendix C). Thus, this research focuses on the German confectionery industry. Additionally, the majority of POS displays used, are from confectionery manufacturers (Kolbrück, 2023). The German confectionery sector is part of the FMCG industry which consists of low priced and daily-use products (e.g. food, household detergent) (Steenis, 2019). These products are often already prepacked and usually for single or limited use (ibid.). The confectionery sector is subdivided into chocolate confectionery, sugar confectionery, fine baked goods, and ice cream (Ahrens, 2024a). Mars Inc. is the leading confectionery company in Germany, followed by Mondelez International and Ferrero (Wunsch, 2024). While Germans spent on average 241.58 Euros on confectionery and snacks in 2022, the average revenue per capita is forecasted to increase to 313.22 Euros in 2028 (Statista, 2023b). One fourth of Germans consume confectionery daily, favoring chocolate products followed by sugar and fine baked confectionery (Janson, 2020).

4.2 The Future Consumers: Generation Z

Alongside environmental challenges, the FMCG marketing industry is facing a shift in consumer segments, in particular the emergence of Generation Z as largest customer base by 2026 (Meola, 2023). The generation's increasing purchasing power (Mondres, 2019; Priporas et al., 2017) underlines their influence on FMCG market and requires a deeper understanding of their preferences (Jain et al., 2014; Williams, 2015). Therefore, this research focuses on German Gen Z, which are born between 1995 and 2010 (Schnetzer, 2023)[2] amounting to approximately 11.66 Mio male and female in 2022 (Statistisches Bundesamt, 2022).

Generation Z decides quicker and keeps up with the latest news while favoring being online as well as continuously interacting (Ayten et al., 2019). However, COVID-19 sensibilized their globalized thinking by concerning the importance of saving money. Additionally, Gen Zers can

[2] Within the qualitative and quantitative research participants between 14 and 17 years-old will be excluded because of their restricted income/grocery budget.

be characterized as open-minded (Shin et al., 2021), conscientious, hard-working, and anxious (Williams, 2015). Generation Z also has a wider range of purchasing criteria compared to older generations, valuing style, sustainability, uniqueness, and flexibility (Amed et al., 2020; Uddin & Khan, 2018).

In terms of sustainabilty, Gen Z atttaches great importance to a brand's ethical behavior (Amed et al., 2020; Uddin & Khan, 2018). Consequently, representing a high environmentally conscious behavior as they try to avoid plastic (37%), and buy products with as little packaging material as possible (35%). The majority would pay a higher price for sustainable sourced, and produced products (PwC, 2020). A change that is also noticeable when it comes to grocery shopping, with 29 percent of German Gen Z selecting sustainability as one of the key purchasing criteria – far more than millennials and Generation X (OC&C, 2019). Although young people are inspired by the media regarding their eating behavior, they primarily follow their personal values and feelings. The eating behavior of Gen Z is strongly influenced by habits, personal health awareness, and mental well-being (Mizia et al., 2021).

5 CONSUMER BEHAVIOR TOWARDS CIRCULAR-DESIGNED POS DISPLAYS

5.1 Stimulus-Organism-Response Model

Numerous models and theories of varying complexity exist to explain consumer behavior. Literature simplifies between behaviorist, neo-behaviorist, and cognitive research approaches (Meffert et al., 2019). While behavioral approaches (e.g. S-R model, black box model) only examine observable, and measurable variables of consumer behavior, thus no mental processes are the subject of the investigation (ibid.), internal processes are used in neo-behavioral approaches (i.e. SOR model) (Kroeber-Riel & Gröppel-Klein, 2013). In this case, intervening variables are present together with observable, and measurable variables (Behrens, 1991; Meffert et al., 2019). The cognitive approach additionally accounts for information processing in short- and long-term memory. For this study, the SOR framework is utilized.

The Stimulus-Organism-Response (SOR) model was first introduced by Mehrabian and Russel (1974) consisting of three elements: stimulus, organism, and response. Eroglu et al. (2003) describe this process as an environmental stimuli which is able to affect a human's emotional state, impacting approach, or avoidance responses (*see Figure 2*). Donovan and Rossiter (1982) adapt the original model to the retail environment.

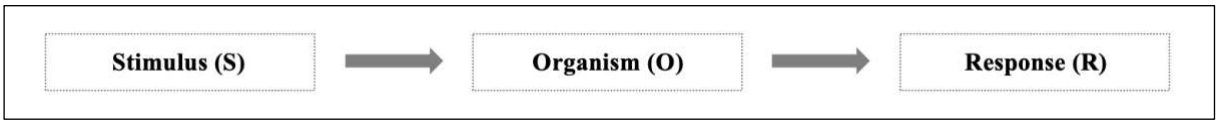


Figure 2: *Stimulus-Organism-Response Model. Own Illustration.*

Due to the lack of literature examining consumer behavior in relation to sustainable POS displays and the fact that POS displays can also be considered indirect packaging (VDP, 2023), the following section summarizes findings from academia that have examined various aspects of consumer attitudes towards eco-friendly packaging (Grunert & Wills, 2007; Grunert, 2011), assuming that these findings are addable and transferable to circular-designed POS displays findings. The adapted SOR model assesses German Gen Z's perception of circular-designed POS displays for confectionery and the impact on their PI and WTP of confectionery placed in a circular-designed POS display.

5.1.1 Stimulus (S)

A stimulus within the SOR model is characterized as the sum of all audible and visible cues (Eroglu et al., 2001), in which a consumer comes into physical contact with a stimulus either accidentally or through their own intentional, goal-directed behavior (Towers, 2014; Wozniak, 2013). Based on prior research, the following three variables serve as stimuli: POS display attributes (*Chapter 5.1.1.1*), CMER (*Chapter 5.1.1.2*), and consumers' EC (*Chapter 5.1.1.3*).

5.1.1.1 POS Display Attributes

The purchase decision-making process depends on the value a consumer derives from the product itself (Wang et al., 2018). While Wang et al. (2018) state that product attributes can contribute to deliver value, Kotler and Armstrong (2021) mention that the perceived value is enhanced through the combination of product attributes. Especially within green consumer behavior, product attributes have been found to significantly influence consumers perceived value (Sharma & Foropon, 2019). While Ketelsen et al. (2020) state that logos and labels are the most important attributes for consumers when being asked to identify sustainable items, Atkinson and Rosenthal (2014) identify that consumers utilize design elements such as sustainability labels, claims, color, and material to evaluate an item's environmentally-friendliness. Banterle et al. (2012) add the level of information provided with regards to sustainability, reusability, and recyclability at the POS. Therefore, the following hypothesis can be drawn in the context of this study:

H_1: A **circular-designed confectionery POS display** has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.

In the following, three specific POS display attributes (a) material, (b) color, and (c) information about sustainability are discussed, expanding hypothesis one (H_1).

(a) Material

During the product evaluation phase, knowledge and understanding play a significant part (Lee et al., 2011; Rao, 1988). Wong (2023) outlines the importance of using environmentally-friendly materials for sustainable POS displays as they can form preferences and attitudes towards a product. However, important factors relating to transport, distribution, and origin of materials are often neglected (Boz et al., 2020; Herbes et al., 2018, 2020). Even though Gershoff and Frels (2015) articulate that sustainable benefits derived from central attributes (i.e. the product itself) are evaluated higher than the sustainable benefits that come from peripheral

attributes (i.e. packaging, promotions), it is necessary to understand how shoppers evaluate these peripheral characteristics. Overall, the properties concerning the end of the packaging's life predominate (Herbes et al., 2018). In particular, reusable materials are considered to be the most environmentally friendly by consumers (ibid.). Nevertheless, shoppers' knowledge of the environmental impact of materials is not congruent with actual Life-Cycle-Assessments. Herbes et al. (2018) explored that glass is considered as the most environmentally-friendly packaging material. While plastic and metal were perceived as the most unsustainable packaging materials (Lindh et al., 2016). However, according to Life-Cycle-Assessments, materials other than glass are often more eco-friendly. Consequently, inefficient environmental decisions, that can be influenced, are made by consumers (Steenis et al., 2017). Thus, the following hypothesis in the context of this study can be drawn:

H_{1a}: A **POS display made of materials that comply with the circular concept** has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.

(b) Color

Humans are permanently exposed to a variety of colors (Bagchi & Cheema, 2013), as a result color becomes a fundamental aspect of human perception (Mehta & Zhu, 2009). Color serves both as a medium of information (Gorn et al., 2004) and as an aesthetic element (Gage, 1999). Various studies explore the effect of colors used for packaging on shopper perceptions (Farooq et al., 2015; Simmonds & Sepnce, 2017). In addition, the relationship between a packaging's color and product attributes is analyzed (Theben et al., 2020). While warm-colored packaging is associated with the sweetness or tastiness of grocery's, cool colors reflect the health or freshness properties of the product (Baptista et al., 2021). According to Scott and Vigar-Ellis (2014), consumers associate natural colors such as brown, green, creamy as more environmentally-friendly. In the eyes of shoppers, in-store displays enhance a stores appeal and the use of color can impact consumers purchase (Law et al., 2012). Therefore, the following hypothesis can be drawn in the context of this study:

H_{1b}: The use of **natural colors**[3] has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.

[3] Natural colors include brown, green, and creamy. The final color used in the quantitative research will be evaluated through the qualitative research.

(c) Information about Sustainability

Nowadays, consumers are interested in receiving information about sustainability, reusability, and recyclability at the POS (Banterle et al., 2012). In addition, Chen et al. (2012), Park et al. (2008) as well as Underwood and Klein (2002) confirm that visual informative stimuli on displays in the retail environment attract as well as encourage consumer decision-making. In sensitizing consumers and orienting purchasing decisions to personal convictions and standards, knowledge and information play a profound role. The major theoretical framework supporting previous research mentions the importance of information in the cognitive process behind purchase decisions (Underwood & Klein, 2002). The strength of controlled beliefs can be influenced by information in line with Ajzen's (1991) theory of planned behavior. Consumers are exposed to thousands of messages every day, which is why companies are advised to avoid overactivation of shoppers (Horstmann, 2017). Nonetheless, businesses need to differentiate their brands and products from their competitors in order to intensify information processing activities as well as to increase the shopper's attention (Philips et al., 2015; Raab et al., 2016). Horstmann (2017) state that it is crucial to achieve an ideal level of stimulation as according to the Yerkes-Dodson law, both too little and too strong stimuli are not optimal. Disinterest can be triggered by weak stimuli, while too strong stimuli lead to overstimulation (Boywitt, 2015; Mair et al., 2011; Yerkes & Dodson, 1908).

Understanding the environmental benefits, which are not always immediately noticed, can be particularly important if consumers are willing to seek further information about the environmental characteristics of packaging (Shao, 2019). According to Trivedi et al. (2018) and Spack et al. (2012), green packaging has the potential to showcase its value when consumers are in contact with it by communicating its environmental advantages, thus increasing its perceived value. Therefore, the following hypothesis can be derived in the context of this study:

H_{1c}: A POS display displaying **information** about its environmentally-friendliness has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.

5.1.1.2 Confectionery Manufacturer's Environmental Record

Most shoppers are aware of and recognize the ecological impact of products they use, the respective packaging, and its overall impact on the environment (Banterle et al., 2012; Martins, 2023; Steenis et al., 2017; Venter et al., 2011). In addition, consumers care about sustainability at the POS by increasingly choosing brands that have sustainability practices in place,

wherefore, it is important for businesses to implement sustainable POS displays (Wong, 2023). Therefore, the following hypothesis can be drawn in the context of this study:

H_2: The **manufacturer's environmental record** has a positive impact on Gen Z's **perceived sustainability** of a circurlar-designed confectionery POS display.

5.1.1.3 Consumers' Environmental Concern

Consumers are expressing an increased awareness towards environment and sustainability (Hennigs et al., 2017) which has been proven as a main determinant in their purchase decision process (Magnier et al., 2016; Meffert & Bruhn 2012; Yadav & Pathak, 2016). EC can be described as a sense of urgency that triggers the activation of multiple consecutive and repeating phases, i.e. attention, motivation, evaluation, and defense (Schwartz & Howard, 1981). Thereby, confirmation is sought activating a certain behavior such as purchase. Motivation and evaluation of the identified behavior can involve a consumer seeking additional insight to verify that his purchase will help save the environment (Choi & Johnson, 2019; Popovic et al., 2019). Jaiswal and Kant (2018) expand Schwartz and Howards' (1981) explanation of EC as an individual's degree of concern towards environmental issues, which is a vital cognitive measure for predicting the shopper's environmental awareness behavior. Consumers with EC are impacted stronger on their attitude towards the environmentally-friendliness of items than humans with less ecological concern (Delia, 2010; Trivedi et al., 2018). Therefore, the following hypothesis can be drawn in the context of this study:

H_3: The higher the level of **environmental concern** of German Gen Z, the greater the influence on their **perceived sustainability** of a circurlar-designed confectionery POS display.

Figure 3 summarizes constructs used for stimulus and organism.

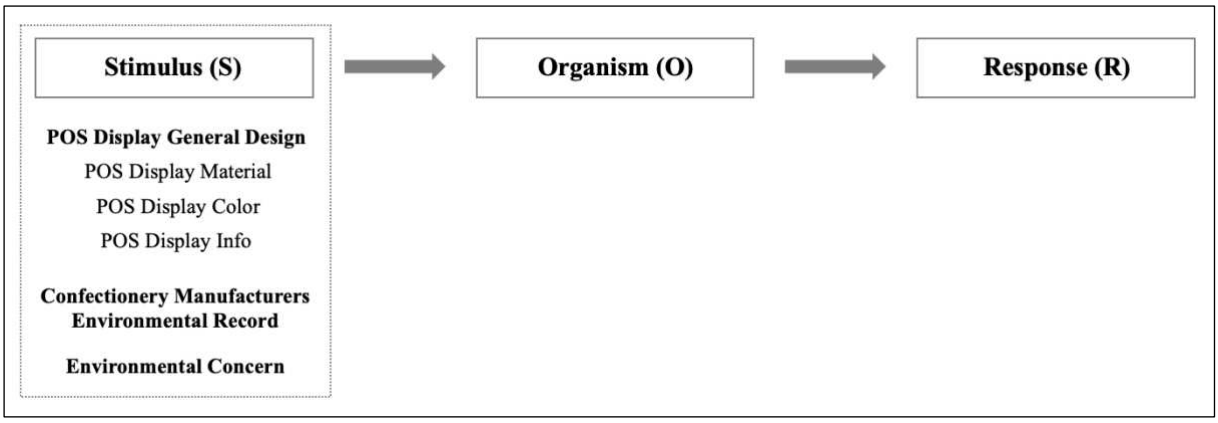


Figure 3: *Stimulus-Organism-Response Factors I. Own Illustration.*

5.1.2 Organism (O)

Within the SOR framework, organism refers to a person's emotional response to environmental stimuli (Mehrabian & Russell, 1974). This research focuses on the sustainable value shoppers derive from the circular-designed POS display, because their purchase decision-making process often depends on the value they derive from an object (Wang et al., 2018). Previous research examined that consumers have a positive attitude towards sustainable packaging (Prakash & Pathak, 2017) resulting in an increased PS, and therefore positively contributing to consumers' PI (Magnier et al., 2016) and WTP (Steenis, 2017) (see *Chapter 5.1.3*). Moreover, consumers indicated sustainable perceived items increase their quality of life (Scott & Vigar-Ellis, 2014).

As previously defined, in this study POS displays are considered indirect packaging (VDP, 2023). Positive emotions evoked by POS displays are shaped by its perceived sustainable advantages (Hollen, 2020). On the opposite, then people are uncertain about the environmental benefits of the POS display and perceive it as a marketing ploy (e.g. greenwashing), negative emotions emerge. However, the effect of positive emotions on PI has been found to be greater than the one of negative emotions (Koenig-Lewis et al., 2014; Sijtsema et al., 2016). Environmental benefits of a circular-designed POS display may not be obvious, consumers who want to behave environmentally-friendly should seek further information (Khare, 2015). Therefore, the following hypotheses can be drawn in the context of this study:

H_4: Greater **perceived sustainability** of a circular-designed POS display contributes positively to German Gen Z's **purchase intention** of confectionery placed in the POS display.

H_5: Greater **perceived sustainability** of a circular-designed POS display contributes positively to German Gen Z's **willingness-to-pay** of confectionery placed in the POS display.

Figure 4 summarizes constructs used for stimulus and organism.

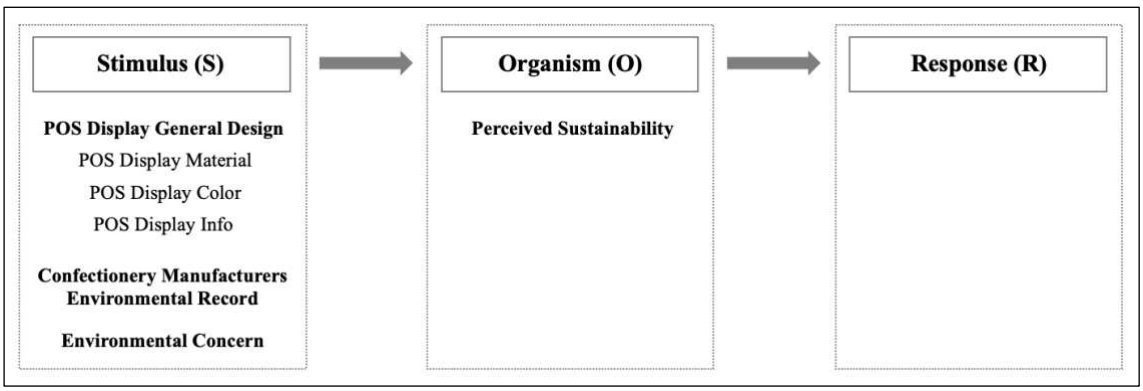


***Figure 4**: Stimulus-Organism-Response Factors II. Own Illustration.*

5.1.3 Response (R)

The element of response consists of the behaviors and attitudes toward a stimulus. In this chapter, Gen Z's PI as well as their WTP of confectionery placed in a circular-designed POS display are discussed.

5.1.3.1 Purchase Intention

PI is the likelihood of consumers deciding to buy a product or service, assessed by the level of consumers' willingness to buy (Takaya, 2019). In the context of this study, this likelihood can be transferred to green PI, which is considered as a form of environmentally-friendly consumption as green products directly and indirectly reduce environmental damage while simultaneously meeting the needs of consumers (Griskevicius et al., 2010). Green products address ecological problems by using sustainable materials/ingredients as well as renewable energy to minimize the environmental impact (Testa et al., 2021). While Jerzyk (2016) found out that consumers tend to switch to a sustainably packaged product, Birgelen et al. (2019) claim that characteristics such as product quality and price are more important in the purchase decision than eco-friendly packaging or in-store advertising.

In addition, POS displays are sales promotions promoting unplanned purchases by targeting low-involvement products (e.g. confectionery). Impulse purchase decisions are a type of purchasing behavior with a low degree of cognitive control, in which the buyer typically gathers little or no information, and evaluates alternatives in a relatively simple and straightforward manner. This is an unplanned process resulting from a spontaneous decision that is typically made at the POS (Schulz, 1972). Horstmann (2017) provides evidence on consumers PI and affection towards products which are promoted by POS displays. Park et al. (2008) and Chen et al. (2012) confirm that visual stimuli on POS displays attract as well as encourage shoppers and consequently influence their PIs. Conseqeuntly, hypothesis H_4 has been formulated.

5.1.3.2 Willingness-to-Pay

In the context of this study, it is not feasible to investigate the Gen Z's WTP of POS displays. However, examining the impact of a circular-designed POS display on Gen Z's WTP on the promoted product will add to manufacturers' knowledge. According to previous conducted sustainability studies, the price of products is identified as an important attribute of consumers' purchasing decisions (Prakash & Pathak, 2017). Although an increasing amount of consumers are willing-to-pay more for products with environmentally-friendly attributes (Mishra et al., 2017) and the fact, that consumers perceive green products as more expensive compared to

conventional items, price is considered a major barrier to sustainable consumption (Hao et. al, 2019). Singh et al. (2018) display that price does not have a significant impact on the PI of eco-labeled products. However, for confectionery manufacturer it is important to know whether German Gen Z is willing-to-pay a premium price for confectionery promoted in circular-designed POS displays, as a result hypothesis H_5 has been derived. *Figure 5* summarizes constructs used within the SOR model.

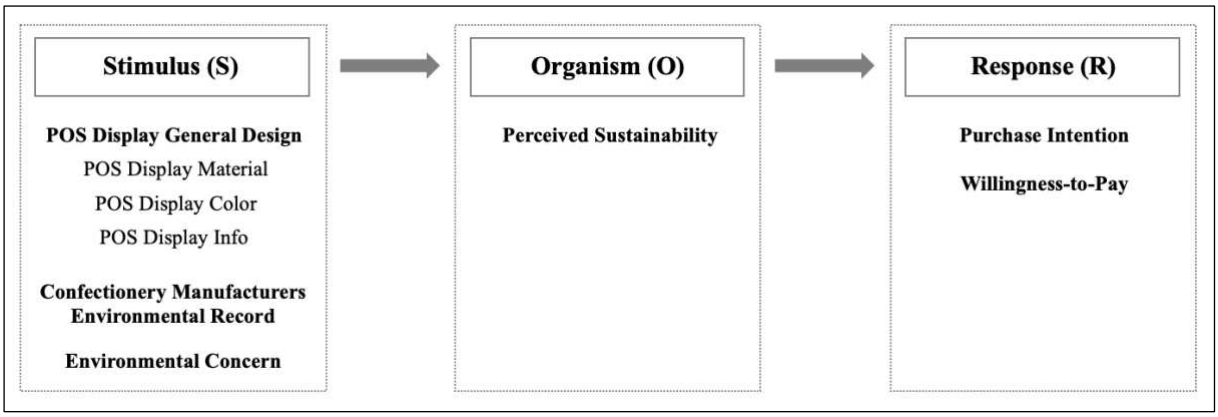


Figure 5: *Stimulus-Organism-Response Factors III. Own Illustration.*

6 METHODOLOGY

6.1 Qualitative Research

Initially, a qualitative study was conducted as an exploratory step to collect initial insights and useful information for the quantitative research afterwards. The qualitative study is intended to elaborate on whether the variables POS display attributes (material, color, information about sustainability), CMER, and German Gen Z's EC influence their PS of a circular-designed confectionery POS display. Moreover, the relationship of the PS on PI and WTP is explored. Consequently, the qualitative research serves as a means to confirm and further develop the previously derived hypotheses.

6.1.1 Research Instrument & Sampling Method

To discover German Gen Z's insights with regards to CE and confectionery POS displays, eight individual in-depth interviews (N_{male}=5; N_{female}=3) were conducted using a purposive sampling technique (Patton, 2002). This method is a form of non-probability sampling allowing the researcher to select individuals with varying knowledge levels of the research topic and different personal characteristics (Cresswell & Clark, 2011). These interviews are unstructured, direct, individual, personal conversations elaborating and exploring beliefs, feelings, motivations, as well as attitudes towards circular-designed confectionery POS displays (Nunan et al., 2020). Given the possible influence of subjective norms in focus groups, individual interviews were preferred (Zikmund, 1997).

The German online interviews, conducted between 5th and 10th March 2024, lasted between 20 to 30 minutes, and were recorded as well as fully transcribed. A summary of the interviews can be found in *Appendix E.* Firstly, the participants were asked if they are familiar with the concept of CE and POS displays. Afterwards, both terms were defined ensuring a same knowledge basis. Secondly, their general opinion towards circular-designed confectionery POS displays was addressed, followed by investigating what stimuli influence their perception of sustainability (H_{1-3}). If a predefined factor such as POS display attributes[4], CMER, and EC was not mentioned by the interviewee, he was asked directly about it. In the fourth part, the influence of PS on PI (H_4), and WTP (H_5) was explored. *Appendix D* displays the in-depth interview guide.

[4] material, color, information about sustainability

6.1.2 Qualitative Data Preparation

To analyze the gathered qualitative insights a content analysis was utilized (Mayring, 2014), allowing the researcher to summarize similar answers after coding. The content coding is used according to Henning et al. (2017) by applying his approach until no new insights can be gained through interviews, resulting in a stable construct of data. Based on the research findings, six categories (see *Chapter 6.1.3*) were developed to ensure reliable results and to provide a comprehensive understanding of the phenomenon.

6.1.3 Exploratory Research Findings

The qualitative study on the German Generation Z's perception of circular-designed confectionery POS displays, and the impact on their PI and WTP of confectionery in Germany revealed a variety of insights reflecting individual motivations and perceptions.

Background and Knowledge about CE and POS displays

The in-depth interviews identify a varied level of awareness and understanding of the CE among participants ranging from some who have never heard of it to others who are frequently confronted with it. All respondents knew what POS displays were.

Influence of POS display attributes on German Gen Z's PS

Participants associated the use of sustainable materials, colors such as green, beige, brown, and earth tones (I.1-8), as well as the visibility of sustainability information with greater sustainability (I.1; I.2; I.4-8). The increasing environmental awareness during the conversation (I.1) as well as the emphasis on the materials and labels (I.2) support the hypotheses ($H_{1a,b,c}$) that eco-designed attributes improve the PS of circular-designed POS displays.

Influence of German CMER on PS

CMER plays a crucial role in Generation Z's perception of the environmental impact of a confectionery POS display. Participants (I.5; I.7) emphasized the importance of a CMER (e.g., documented by sustainability labels, reports), influencing their PS of a circular-designed confectionery POS display. This highlights a positive correlation between the CMER and the PS of circular-designed POS displays (H_2).

Influence of German Gen Z's EC on PS

The level of EC varied among the participants. Attendees with a higher level of EC (I.5; I.7) are more likely to recognize and appreciate sustainability practices. This suggests that there is

a direct correlation between the participants' level of EC and their PS of circular-designed POS displays. This result supports the hypothesis (H_3) that EC increases the PS of such displays.

Influence of German Gen Z's PS on their PI

All participants have not yet paid attention to whether a POS display is sustainable or not (I.1-8). However, the interviewees indicated that a higher PS of circular-designed POS display positively influences PI (H_4). Participants expressed a preference for purchasing confectionery from displays they perceive as more sustainable. This preference was especially prominent among those who already consider environmental aspects in their purchasing decisions (I.1; I.2; I.6-8). Therefore, indicating that PS can indeed enhance the appeal of products promoted in environmentally-friendly POS displays.

Influence of German Gen Z's PS on their WTP

In general, the WTP a premium for confectionery promoted in circular-designed POS displays differs among the respondents. Participants, who see circular-designed confectionery POS displays positively, have a higher WTP (I.1; I.2; I.5-8). In contrast, other participants (I.3; I.4), who had either a lower purchasing power or prioritized other factors, had a lower WTP. Therefore, the WTP for confectionery offered in circular-designed POS displays is positively influenced by German Gen Z's PS (H_5).

6.1.4 Implications for Quantitative Research

Based on the findings, the following implications for the quantitative research can be derived: None of the existing hypotheses are deleted and no new hypothesis is added which can be attributable to the small sample size of the qualitative research. Based on the varying knowledge about CE and POS displays among the participants, two respective explanations are implemented in the questionnaire. Moreover, participants (I.2, I.5) indicated that it would be useful to show a POS exhibit for a better visualization and imagination. Therefore, a circular-designed POS display mockup is created to better showcase the shopper experience. The model was not colored, as most respondents stated that beige is associated with sustainability as a natural and neutral color. In addition, the MDF material used should not be concealed by the color, but rather be visible.

6.2 Quantitative Research

The following quantitative research aims to statistically test the outlined hypotheses, resulting in the extent to which the predefined stimuli influence German Generation Z's PS of a circular-

designed POS display, as well as their PI and WTP of confectionery promoted in this POS display. Beforehand, a pre-test with six volunteers was conducted to refine the questionnaire.

6.2.1 Research Model & Hypotheses

The applied research model is displayed in *Figure 6* and the derived hypotheses, summarized in *Table 1*, are marked with arrows.

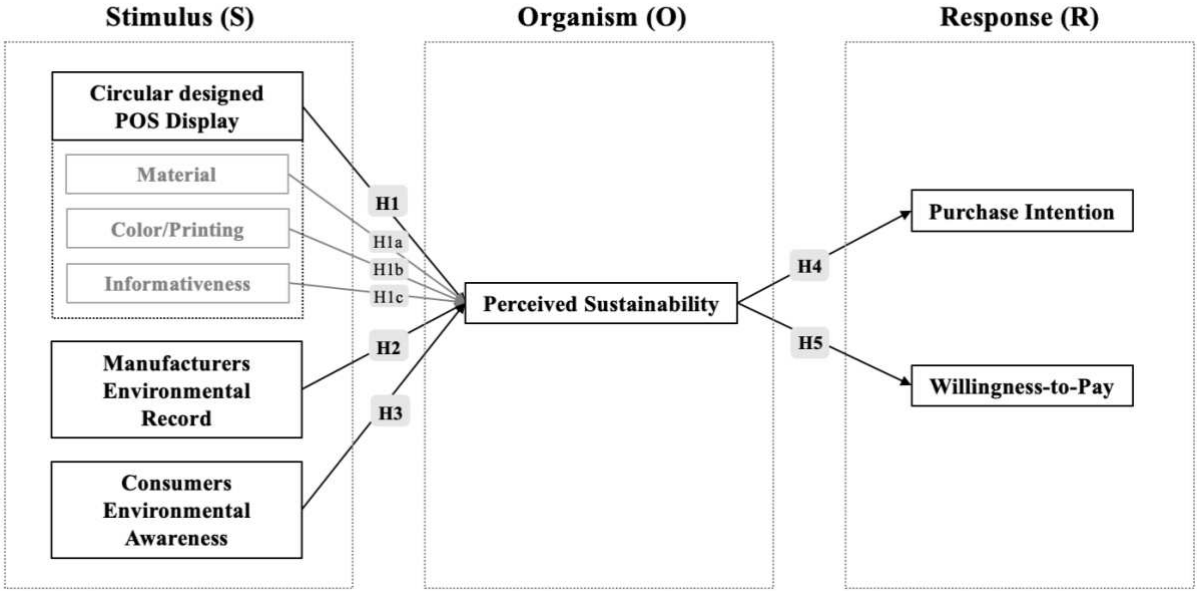


Figure 6: *Research Model. Own Illustration.*

Hypotheses	
Effects on Perceived Sustainability of a circular-designed POS Display	
H_1	A **POS display made of materials that comply with the circular concept** has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.
H_{1a}	A **POS display made of materials that comply with the circular concept** has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.
H_{1b}	The use of **natural colors** has a positive impact on German Gen Z's **perceived sustainability** of a circular-designed confectionery POS display.
H_{1c}	A POS display displaying **information** about its environmentally-friendliness has a positive impact on German Gen Z's **perceived sustaainability** of a circular-designed confectionery POS display.
H_2	The **manufacturer's environmental record** has a positive impact on Gen Zers **perceived sustainability** of a circurlar-designed confectionery POS display.
H_3	The higher the level of **environmental concern** of German Gen Z, the greater the influence on their **perceived sustainability** of a circular-designed confectionery POS display.

Effects on Purchase Intention and Willingness-to-Pay	
H_4	Greater **perceived sustainability** of a circular-designed confectionery POS display contributes positively to German Gen Z's **purchase intention** of confectionery placed in the POS display.
H_5	Greater **perceived sustainability** of a circular-designed confectionery POS display contributes positively to German Gen Z's **willingness-to-pay** of confectionery placed in the POS display.

Table 1: *Hypotheses Overview*

6.2.2 Research Instrument & Sampling Method

To statistically test the hypotheses and evaluate the influence of a circular-designed POS display on German Generation Z's PS, PI and WTP, a quantitative study was conducted. Qualtrics was used to set up an online questionnaire (see *Appendix F)* and to collect data anonymously by distributing a link via social media platforms. The usage of an online questionnaire, as research instrument, is a cost-effective, time-efficient, and visual opportunity to collect data (Albers et al., 2009; Burns et al., 2017). Attendees can access and complete the survey on their own time, reducing interviewer bias and increasing data accuracy as well as data quality (Albers et al., 2009). The survey was limited to one participation per person and only mandatory questions are used, aiming to receive a complete data set. Moreover, randomization was applied to avoid sequence effects. As subjects must be a representative of Gen Z (between 18 and 29 years-old) and German nationality, screener questions were applied.

The applied sampling method was a non-probability method, meaning the probability to be selected into the sample is known (Burns et al., 2017). Additionally, friends and acquaintances were also able to share the survey link with other friends. Thus, the applied sampling methods are convenience sampling and snowball sampling. The statistic literature suggests calculating the required sample size for which a confidence interval of 95% is applied, resulting in a z-score (z) of 1.96. A standard deviation (SD) with 0.5 and a margin of error (e) of ±10% are utilized. Therefore, according to Qualtrics (2022) a required sample size (N) of 97 is calculated:

$$N = \frac{z^2 * SD * (1 - SD)}{e^2}$$

6.2.3 Measurement & Stimuli

To be able to answer the research questions, a semi-standardized questionnaire was used, containing specific answer options such as: yes/no questions, seven-point Likert scales (1 = completely disagree; 7 = completely agree), open text and selection options. All seven-point scales are handled as interval-scaled, whereby an equidistant spacing between the items is

assumed (Cleff, 2015). The measurement of several variables has been adapted for the cause of this study based on previous literature. All constructs consist of multi-item scales shown in *Table 2*. *Appendix G* provides the applied items and scales with the corresponding authors.

Construct	Items	Items origin
CE POSD General Design	**GD_1:** I like the display. **GD_2:** The display is appealing. **GD_3:** The display is attractive.	Burner (1998, 2009)
CE POSD Material	**Material_1:** I recognize the material used **Material_2:** I know the material used **Material_3:** I like the material used	
CE POSD Color	**Color_1:** I like the color of the display. **Color_2:** The color of the display is appealing. **Color_3:** The color of the display is attractive.	
CE POSD Info	**Info_1:** The display provides relevant information. **Info_2:**The display illustrates the benefits of the materials used **Info_3:**The display believable.	
CMER	**CMER_1:** Confectionery manufacturer's environmental record is important to me. **CMER_2:** I am able to recognize the confectionery manufacturer with a stronger environmental record. **CMER_3:** I actively search for a confectionery manufacturer's environmental record. **CMER_4:** A confectionery manufacturer which has practices in place to reduce their environmental impact, corresponds to how I think as a person. **CMER_5:** I see a duty on confectionery manufacturers to protect the environment.	Prakash & Pathak (2016); Magnier & Schoormans (2017)
EC	**EC_1:** Human beings, when they interfere with nature, often cause disastrous consequences. **EC_2:** Human beings must live in harmony with nature to survive. **EC_3:** Humanity is abusing the environment. **EC_4:** I am concerned about the environment. **EC_5:** I see a duty in myself as a consumer to protect the environment.	Prakash & Pathak (2016); Magnier & Schoormans (2017); Yadav & Pathak (2016)
PS	**PS_1:** This POS display is more sustainable than common POS displays. **PS_2:** This POS display is designed in a way that minimizes its environmental impact. **PS_3:** This POS display has been designed to be easily recyclable/reusable at the end of its life.	Haws et al. (2014); Gershoff and Frels (2015)
PI	**PI_1:** I would be willing to buy confectionery in circular-designed POS displays. **PI_2:** I intend to purchase confectionery placed in circular-designed POS display, if it is available. **PI_3:** I would exert a great deal of effort to purchase confectionery only from a circular-designed POS display.	Dodds et al. (1991); Nystrand & Olsen (2020); White et al. (2012)
WTP	I am willing-to-pay more for confectionery promoted in a circular/eco-designed POS display.	

Table 2: *Construct Overview*

According to Kuß et al. (2018) multi-item scales assess complex constructs more accurately than single-item scales wherefore variables that consist of closely related items can be summarized as one variable ensuring a higher level of reliability due to the lower dependency on one single item. Based on POS display manufacturer's product development and research, one potential circular-designed POS display is built in accordance with *Chapter 3.3*. *Figure 7* illustrates the stimulus which were shown to the participants, containing various information to provide more precise details about the attributes of the circular-designed POS display.

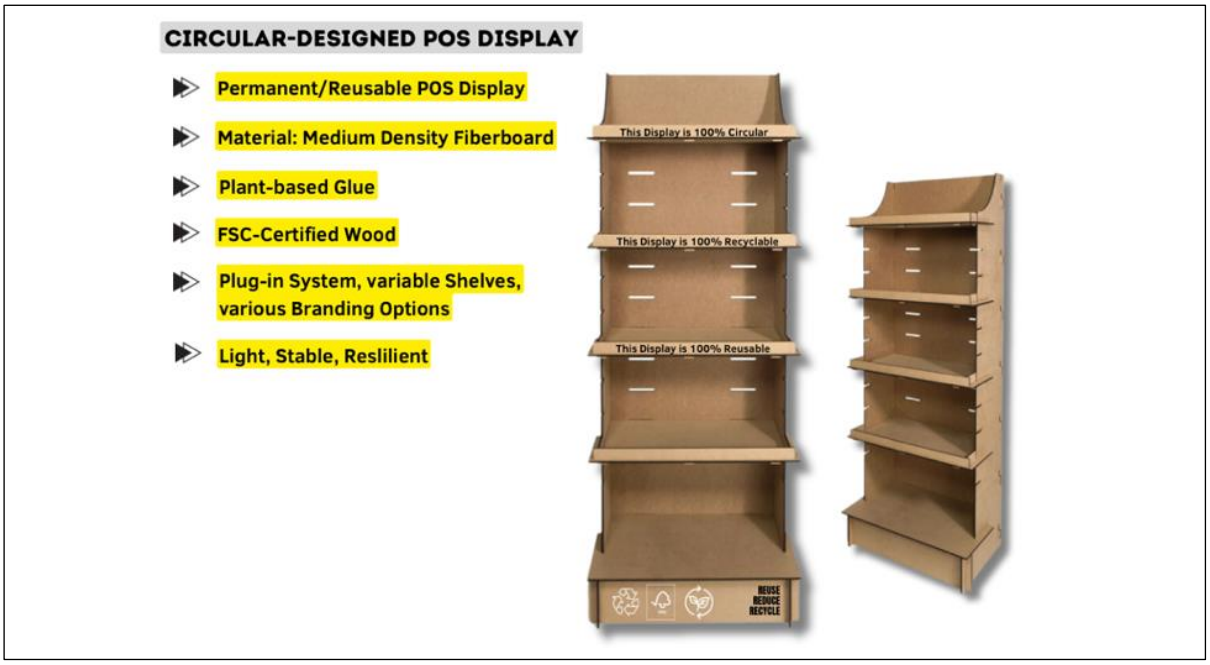


Figure 7: *Circular-Designed POS Display Mockup. Own Illustration.*

6.2.4 Quantitative Data Preparation

The data was gathered with Qualtrics between 14th and 24th March 2024, receiving the data readily structured for SPSS to analyze the findings. Due to the age and nationality restrictions, non-German respondents and attendees younger than 18 and older than 29 years were exempt from the sample. Moreover, surveys which were completed in less than three minutes were excluded as well. With the use of an awareness question, the attention of the participants was assessed. If a wrong cross had been placed, the participant was also removed. While 274 people opened the survey, after the outlined adjustments, a total of 236 complete data sets are available for the analysis. Thus, fulfilling the required sample size.

For all analyses, a significance level of $\alpha = 0.05$ is applied.

7 RESEARCH ANALYSIS & RESULTS

7.1 Sample Profile

Profiling the final sample of 236 subjects, the age of the respondents varied between 18 and 29 years of which the majority reported being between 23 and 26 years old. The most frequently recorded age is 24 years (17.8%), and the average respondent is 23.78 years old. Moreover, gender was equally distributed. Based on the importance of CE knowledge derived from the qualitative study, *Table 3* displays characteristics of the sample profile and provides a detailed overview showing the differences in CE knowledge.

	All	**Knowledge about CE** *(N=98)*	**No Knowledge about CE** *(N=138)*
Gender			
Female	51.2%	33.2%	66.8%
Male	48.8	66.8%	33.2%
Age (mean)	*23.78*	*24.01*	*23.39*
Education			
Realschule	*2.1%*	*0.0%*	*3.6%*
High School	*20.3%*	*17.3%*	*22.5%*
Bachelor Degree	*51.7%*	*52.0%*	*51.4%*
Master Degree	*23.7%*	*30.6%*	*18.8%*
Other	*2.1%*	*0.0%*	*3.6%*
Occupation			
University Student	*69,5%*	*71,4%*	*68.1%*
Apprentice	*1.3%*	*1.0%*	*1.4%*
Employed	*26.3%*	*24.5%*	*27.5%*
Self-employed	*3.0%*	*3.1%*	*2.9%*
Income			
Below 10.000 €	*44.2%*	*46.4%*	*42.1%*
10.001 - 20.000 €	*13.5%*	*12.7%*	*14.3%*
20.001 - 50.000 €	*12.4%*	*13.5%*	*11.4%*
50.001 - 100.000 €	*26.5%*	*24.5%*	*28.6%*
Over 100.001 €	*3.1%*	*2.8%*	*3.6%*

Table 3: *Sample Profile.*

For 50.4 percent of participants the CMER is an important purchasing criteria. Furthermore, 62.7 percent find it difficult to identify the most sustainable confectionery manufacturer. One potential reason may be that most do not actively look for the manufacturer's sustainability efforts. Overall, 79.2 percent believe that confectionery manufacturers have a duty to do more in terms of sustainability. While 91.1 percent of the respondents have environmental concerns, almost all feel that it is their duty as consumers to protect the environment.

In terms of POS marketing initiatives, 71 percent of the respondents do not actively search for and pay attention to POS displays while grocery shopping. But two thirds actively search for POS promotions such as discounts. Only eight percent indicated to think about the environmental-friendliness of POS displays, however, half of the respondents demand more sustainable POS displays options. Participants general opinion based on the created circular-designed POS display mockup (*see Figure 4*) is presented in *Table 4.*

	Mean
CE POS Display General Design	
Likeability	3.98
Attractiveness	3.46
Appeal	3.43
CE POS Display Material	
Recognition	5.15
Knowledge	5.22
Likeability	4.88
CE POS Display Color	
Likeability	2.99
Attractiveness	2.70
Appeal	2.65
CE POS Display Info	
Level of Info	5.22
Shows Advantages	5.78
Appeal	6.51

Table 4: *General Opinion towards CE POS Display*

Note: 1= completely disagree – 7= completely agree

In general, participants do not have a positive overall perception of the circular-designed POS display (mockup), however broken down, attributes such as material used, and the level of information provided show a more positive perception. On the opposite, respondents do not like the color. *Figure 8* illustrates participants' association if they must describe sustainability in a color.

Figure 8: *Color Association of Sustainability. Own Illustration.*

7.2 Validity & Reliability of Constructs

Building factors of each construct illustrated in *Table 2* is a prerequisite of testing the outlined hypotheses (*see Table 1*). Therefore, eight principal component analyses were performed.

The Kaiser-Meyer-Olkin (KMO) criterion scores above 0.5 for each principal component analysis, which proves the data's validity used for the factor analyses (Cleff, 2015). Moreover, each Bartlett's Test of Sphericity indicates a significant result ($p < 0.05$) (Franck et al., 2018). Furthermore, Cronbach's alpha is utilized assessing the reliability of all constructs. The internal consistency of the factors created are aligned based on Blanz' (2015) rule of thumb. Relevant factors concerning validity and reliability of the constructs are summarized in *Table 5*. Discriminant validity is proven and is displayed in *Appendix H*.

Construct	KMO	Bartlett's Test of Sphericity	Cronbach's alpha
CE POSD General Design	0.774	< 0.01	0.936
CE POSD Material	0.602	< 0.01	0.593
CE POSD Color	0.766	< 0.01	0.963
CE POSD Info	0.695	< 0.01	0.791
CMER	0.796	< 0.01	0.831
EC	0.797	< 0.01	0.844
PS	0.679	< 0.01	0.738
PI	0.668	< 0.01	0.737

Table 5: *Validity and Reliability of Constructs*

Moreover, based on the Shapiro-Wilk-Test, $p > 0.05$ all stimuli factors are approximately normally distributed and there is a homogeneity of variance (Levene's test, $p > 0.05$). Summarizing adequate validity and reliability is given in the theoretical model.

7.3 Analysis of Stimulus-Organism-Response Model

To evaluate the influence of a circular-designed confectionery POS display on German Generation Z's PS, PI, and WTP based on the previously derived research model (see *Chapter 6.2.1*), the analysis is divided into two chapters as illustrated in *Figure 9*. *Chapter 7.3.1* focuses an answering RQ_2 with the help of H_{1-3}, whereas *Chapter 7.3.2* underlines the influence of organism on response answering RQ_3 with H_4 and H_5.

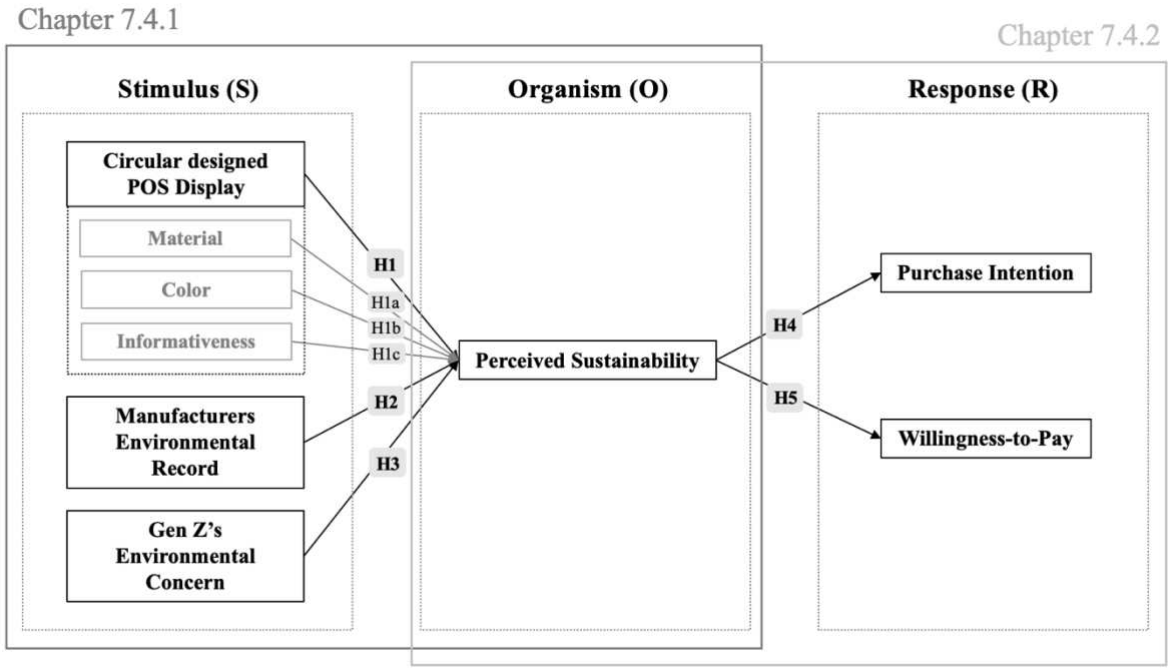


Figure 9: *Research Model - Analysis Overview. Own Illustration.*

7.3.1 Effects of circular-designed POS Display Attributes, Confectionery Manufacturer's Environmental Record & Gen Z's Environmental Concern on their Perceived Sustainability

Investigating the relationship of the stimuli factors on organism, a mutliple linear regression analysis was applied. The regression model is statistically significant ($p_1 < 0.001$) with an adjusted R^2 of 0.270, indicative for a low to moderate goodness-of-fit of the model (Cohen, 1988), meaning that 27 percent of the variance of PS can be explained by at least one factor (Kissel & Poserina, 2017). The stimulus factors were able to statistically significant predict Gen Z's PS of a circular-designed POS display, $F(1, 235) = 14.122$, $p_1 < 0.001$ (Kissel & Poserina, 2017). The independet variables (IVs) CE POSD General Design ($p_2 = 0.007$; $\beta = 0.232$), CE POSD Info ($p_2 < 0.001$; $\beta = 0.276$) along with Gen Z's EC ($p_2 < 0.001$; $\beta = 0.316$) have a significant relationship with Gen Z's PS. Thus, H_1, H_{1c}, H_3 can be confirmed. The detailed analysis can be viewed in *Appendix I* and the results are interpreted in *Chapter 8.1.*

Based on the varying CE knowledge among participants, possible moderating effects of CE knowledge between the stimulus factors and PS are tested with a multigroup analysis. The sample was divided into two groups based on their knowledge concerning CE. Both regression models are statistically significant. The regression model of respondents with CE knowledge shows increasing explanatory power. *Table 6* illustrates that there is only a significant

difference in terms of the general design of the circular-designed POS display, underscoring that the PS of consumers with CE knowledge depends on likability, attractiveness, and appeal.

	General Model	Knowledge about CE	No Knowledge about CE
	(n=236)	(n=98)	(n=138)
Model	$p_1 < 0.001$ adj. R^2=0.270	$p_1 < 0.001$ adj. R^2=0.325	$p_1 < 0.001$ adj. R^2=0.216
H_1 **CE POSD General Design → PS**	**p_2=0.007**	**p_2< 0.001**	NS
H_{1a} **CE POSD Material → PS**	NS	NS	NS
H_{1b} **CE POSD Color → PS**	NS	NS	NS
H_{1c} **CE POSD Info → PS**	**p_2< 0.001**	**p_2< 0.001**	**p_2=0.004**
H_2 **CMER → PS**	NS	NS	NS
H_3 **EC → PS**	**p_2< 0.001**	**p_2< 0.001**	**p_2=0.002**

Table 6: *Results Hypotheses H_{1-3}.*

Note: NS = Non-Significant

In real-world scenarios, humans' perception of the relationship between factors is rarely simple or additive as the effect of one factor on PS may depend on the level or presence of another factor. Therefore, 15 two-way interactions were built from the six stimulus factors. In total, the impact of 21 IVs on PS is investigated in an extended multiple linear regression. The model, displayed in *Appendix I*, is statistically significant ($p_1 < 0.001$) and has an improved explanatory power (adjusted R^2 of 0.329). H_1, H_{1c}, and H_3 continue to be confirmed. In addition, three interactions, namely CE POSD General Design and CE POSD Material ($p_2 < 0.045$; $\beta = 0.154$), CE POSD General and CE POSD Info ($p_2 < 0.015$; $\beta = -0.239$), CE POSD Color and CE POSD Info ($p_2 < 0.017$; $\beta = 0.237$), are also statistically significant. These results are interpreted in *Chapter 8.1.* Based on the scope of this study, no further multigroup analysis was conducted to examine the moderating effect of CE knowledge integrating the previously mentioned 15 interactions, which poses a limitation that should be explored in future studies as well as the integration of demographical variables.

7.3.2 Effect of Gen Z's Perceived Sustainability on their Purchase Intention & Willingness-to-Pay

Analyzing the influence of organism on response within the SOR model, two linear regressions are utilized (see *Appendix J*). Both simple linear regressions are not statistically significant (PS

→ PI: $p_1 = 0.143$; PS → WTP: $p_1 = 0.268$). Consequently, there is no significant relationship between PS and PI as well as between PS and WTP. No interactions, and therefore no model extension can be formed when examining the influence of organism on response due to the single IV in these simple linear regressions, which is interpreted in *Chapter 8.1.*

Again, the moderating effect of CE knowledge was tested via multigroup analysis. Considering the respondents without knowledge, neither linear regression models are statistically significant (see *Table 7*). However, in terms of CE knowledge the linear regression model displaying the relationship between PS on PI is statistically significant ($p_1 = 0.026$) as well as the regression examining the relationship between PS on WTP ($p_1 = 0.030$). It is evident that when a consumer has knowledge about the CE, the PS influences PI and WTP.

	General Model	**Knowledge about CE**	**No Knowledge about CE**
	(n=236)	(n=98)	(n=138)
Model	PI: NS WTP: NS	PI: $p_1 < 0.026$; adj. R^2=0.029 WTP: $p_1 < 0.030$; adj. R^2=0.027	PI: NS WTP: NS
H_4 PS → PI	NS	$p_2 = 0.026$	NS
H_5 PS → WTP	NS	$p_2 = 0.030$	NS

Table 7: *Results Hypotheses H_4 & H_5.*

Notes: NS – Non Significant

Finding the optimum price for a product or service is a major challenge for marketeers, therefore, the van Westendorp pricing analysis is utilized to quantify the WTP of German Gen Z. *Figure 10* displays the results based on four questions shown in *Table 8*.

van Westendorp Pricing Analysis		
WTP	**Q1:** At what price do you think the product is too expensive?	van Westendorp (1974)
	Q2: At what price do you think the product is a bargain?	
	Q3: At what price do you think the product begins to seem expensive, but you would eventually buy it?	
	Q4: At what price do you think the product is priced so low that it makes you question its quality?	

Table 8: *van Westendorp Pricing Analysis.*

The intersection of the curves "too cheap" and "too expensive" displays the optimal price point of 2.10 Euro. Here, the same number of participants consider the price to be too cheap or too expensive implying the purchase resistance is lowest here, as the lowest amount of people stated they would not buy the product at this price. The intersection of the curves "not cheap" and

"not expensive" provides the indifference price point of 2.00 Euro. At this point, the same number of people find the price expensive or cheap. The van Westendorp model shows that a confectionery item priced at 2.00 Euros in a common POS display, can be priced between 1.85 Euro and 2.30 Euro if it is placed in a circular-designed POS display.

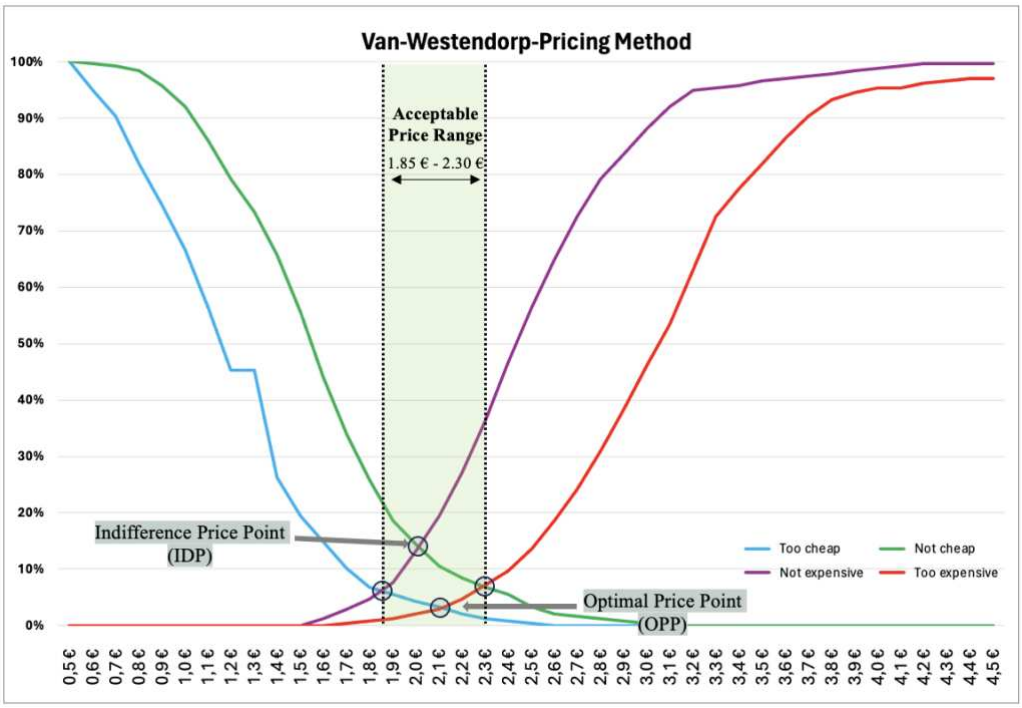


***Figure 10**: Van Westendorp Pricing Method. Own Illustration.*

7.4 Final Research Model

The analysis findings displayed in *Chapter 7.3* led to the final research model pictured in *Figure 11* displaying only significant hypotheses and interactions.

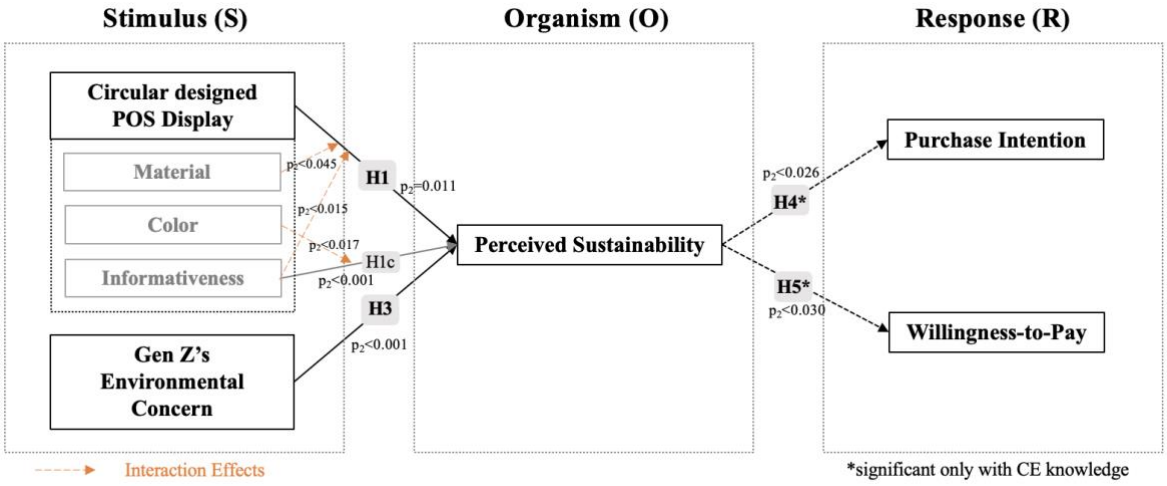


***Figure 11:** Final Research Model. Own Illustration.*

Summarizing, German Gen Z's PS is positively influenced by a circular-designed POS display and their EC. Moreover, Gen Z's PS has a significant impact on their PI and WTP of confectionery placed in a circular-designed POS display when they are familiar with CE.

8 DISCUSSION

8.1 Main Findings

RQ_1: Does German Gen Z care about the environmental-friendliness of confectionery POS displays?

Most of the young German consumers belonging to Generation Z do not actively search for POS displays while grocery shopping (71%), however, 62 percent actively search for POS promotions such as discounts. With regards to the environmental-friendliness of POS displays, only eight percent consider this aspect, whereas 12 percent find current POS displays sustainable and 48 percent request an increase in the environmental-friendliness of a POS display. Overall, German Gen Z has so far been indifferent to the eco-friendliness of confectionery POS displays, although their growing preference for sustainable retail practices reflects their general environmental awareness and commitment to sustainability in their purchasing decisions.

RQ_2: Do circular-designed POS display attributes, CMER, and German Gen Z's level of EC influence German Gen Z's PS of a circular-designed POS display?

German Generation Z's PS of a circular-designed POS display is significantly influenced by the overall design, the information provided, and additive effects (interactions) between POS display attributes, along with German Gen Z's EC. This means, that the more appealing, attractive, as well as likeable, the higher the EC and the more information about the POS display is available, the higher the PS. Consequently, concerned and well-informed consumers perceive the POS display more sustainable. Furthermore, the presence of CE knowledge moderates these relationships, enhancing the explanatory power of the model and showing that it is essential to inform and educate German Gen Z about CE and how to be more environmentally-friendly.

In real-world scenarios, humans' perception of the relationship between factors is rarely simple, which is also proven in this research with the following significant interactions: The interaction CE POSD General Design and CE POSD Material indicates that the relationship between general aspects of circular-designed POS displays, and PS is moderated by the material used in these displays. The positive coefficient indicates that as the quality of the material improves or as its rating increases, it increases the positive impact of the general design characteristics on PS. The interaction CE POSD General and CE POSD Info implies that the influence of the

general characteristics of POS displays on Gen Z's PS changes when additional information about the circular-design is considered. The negative coefficient suggests that the positive effect of general characteristics on sustainability perception decreases as more information is provided., suggesting potential fears of greenwashing or loss of credibility with information overload. The interaction CE POSD Color and CE POSD Info shows that the color of the POS display and the provided information interact in a way that jointly enhances Gen Z's PS. In practice, these interactions emphasize the need to carefully coordinate different aspects of eco-designed POS displays to maximize their sustainability appeal to Gen Z consumers.

RQ3: Does German Gen Z have a greater PI towards confectionery promoted in a circular-designed POS display and are they willing-to-pay a price premium for products placed in such a POS display?

German Generation Z does not have a greater PI and WTP towards confectionery promoted in a circular-designed POS display. Both results imply, that although Generation Z cares about the environment and sustainability in the grocery industry (Kara & Min, 2024), this behavior is not directly converted into purchasing actions (Palomo et al., 2023). Consequently, these research findings are in accordance with previous literature. Additionally, consumers might not be aware of the sustainability aspects that are supposed to influence their purchasing decisions due to the effectiveness of the displayed CE POS display mockup, which may be limited in highlighting the sustainable attributes in the questionnaire. In general, if the sustainability attributes are not adequately communicated at the POS, shoppers may not perceive these as sustainable. Furthermore, the level of knowledge about CE shows a moderating effect, because the higher the PS, the more likely it is that the Gen Zer with knowledge about CE will buy confectionery in this display. Moreover, his WTP increases. Based on the van Westendorp model, showing that a confectionery item priced at 2.00 Euros in a common POS display, can be priced between 1.85 Euro and 2.30 Euro if it is placed in a circular-designed POS display.

8.2 Managerial Implications

The outlined findings equip academics and practitioners in the field of sustainable confectionery POS marketing initiatives in Germany with a first guidance. It is necessary to clarify that currently no well-known confectionery manufacturer uses a 100 percent circular-designed POS display. However, they are continuously optimizing their displays to increase sustainability. Within the process, confectionery manufacturers need to first understand that the economic model of CE is sparsely spread within the German Generation Z. Therefore, they

should inform consumers and convince potential customers of the environmental and economic benefits related to their purchase. In the following, specific managerial implications are discussed.

Revisit Design Elements of circular-designed POS Displays

Within supermarkets numerous POS displays from different brands and formats are placed. Therefore, confectionery manufacturers are advised to create attractive extrinsic attributes of the POS display ensuring visibility beyond all brands, as most of the respondents did not find the displayed circular-designed POS display attractive or appealing. The color was particularly criticized. Nonetheless, the provided sustainability information resonated with Gen Z, as they demand transparent information as a prerequisite for the purchase of confectionery from a circular-designed POS display. Therefore, marketing managers are advised to use appealing colors and attractive visuals, without compromising the sustainability message which includes environmentally-friendly printing. A close collaboration with POS material manufacturers, who specialize in eco-friendly materials, and creative agencies will help to build sustainable visually appealing confectionery POS displays. Overall, this adds value to the product portfolio since consumers value the company's effort to make consumption more sustainable.

Enhance Transparency of Environmental Record and Educate about CE

This study identified that German Gen Z place a strong obligation on confectionery manufacturers to enhance their environmental efforts. In addition, a gap in sustainable communication can be observed, with many respondents having difficulties identifying the most sustainable manufacturer. Therefore, increasing transparency of their environmental record is necessary to communicate the benefits of the materials used and the initiatives implemented at the POS. In this context, social media platforms can play a key role in educating Gen Z and showcasing the brand's commitment to sustainability. Moreover, labels and information need to be consistently placed on the POS display. As young consumers are familiar with handling and retrieving information by QR-codes, the usage of these codes on a POS display can educate and inform them about a company's circular practices.

Consumer's WTP a Premium

As Gen Z's WTP depends on their familiarity with a CE, consumer education is necessary to increase the price of a confectionery item. Based on van Westendorps pricing analysis, the use of a circular-designed confectionery POS display would allow confectionery manufacturers to

increase the prices for confectionery from 2.00 Euro, if placed in common POS display, to 2.30 Euro (+15%), if placed in circular-designed POS display. Nonetheless, confectionery manufacturers should not exceed the WTP of Gen Z.

Field Experiments and Consumer Research

Confectionery manufacturers are advised to conduct consumer research and execute field experiments to underpin and extend the outlined findings. For instance, a comparison test could be conducted in two supermarkets with similar shopper demographics: A regular POS display (control group) and a circular-designed POS display, both filled with the same confectionery are placed in a similar in-store location. The test can be analyzed by using KPIs such as sales rate or repurchase rate. Thus, when the rates of confectionery placed in the circular-designed POS display are equal or even higher, customers recognize and accept circular-designed POS displays.

Collaboration with Retail Chains

Most of Gen Zers buy confectionery mainly in retail stores, which is why companies must guarantee their availability across these channels. In Germany, these would be retail chains including Edeka, Rewe, Markant, and the Schwarz Group. Trade marketers are recommended to develop an extraordinary POS journey, transforming the POS to a point-of-experience. Therefore, it is essential to collaborate with retailers and to agree on special conditions along with unique POS marketing strategies.

Product as a Service

Overall, besides using sustainable materials following the principles of a CE, a rental system of POS displays could be an interesting revenue model for confectionery manufacturers. POS display manufacturers can lend permanent/multi-use displays to grocery manufacturers for a certain period. It will be important that these displays are stable and without branding. Nevertheless, personalized branding must be made possible afterwards using easily removable sustainable adhesives. As digitalization progresses, integrated digital displays may be used to play advertising from the promoting company.

Since resources are limited and marketers must prioritize these implications accordingly, a timeframe is suggested in *Figure 12,* which should serve as orientation. All in all, the topic of CE and sustainable POS displays will continue to gain importance in the future, wherefore

managers must be aware and rethink their POS marketing strategies attracting Gen Z to purchase confectionery from circular-designed POS displays.

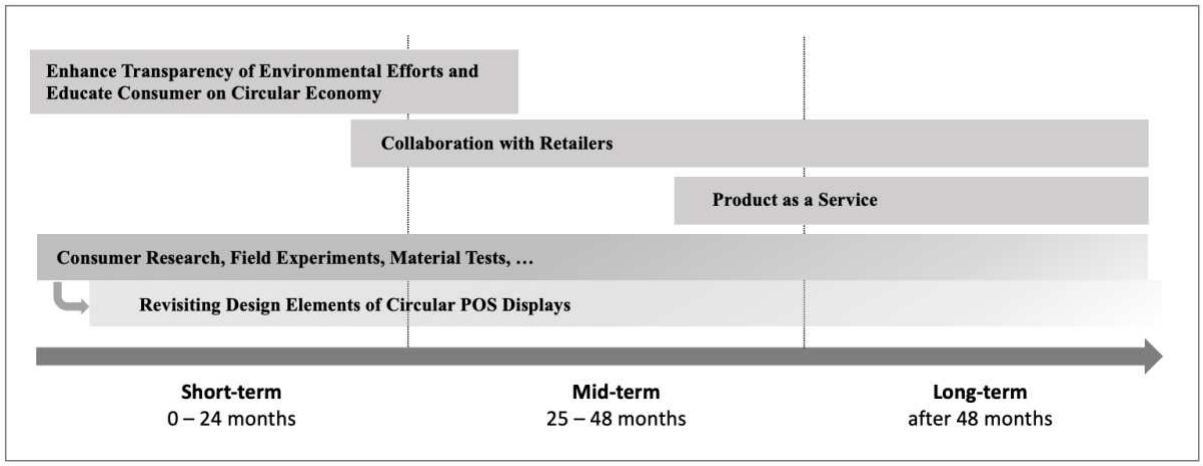


Figure 12: *Managerial Implications Timeframe. Own Illustration.*

8.3Limitations & Future Research

There are several limitations in this research. First, given the use of non-probability sampling, the study's findings are not representative, reducing the validity of the research results. Therefore, the derived conclusions concerning German Gen Z cannot be generalized. Additionally, the age distribution is not evenly distributed, distorting the results. Survey participants might be influenced by subjective and social norm, representing the perceived social pressure from other individuals or groups to act in a certain way. Regarding the layout of the survey, participants were not able to touch and feel the circular-designed POS display mockup. Thus, the evaluations only rely on the imaginations of the respondents as further sensory stimuli like sight, smell, or touch could not be transferred through the illustration. They can play an important role for decision-making when buying confectionery. Additionally, several respondents were not familiar with the concept of CE and POS displays. Afterwards, a short definition about both concepts were shown, but not in the extent that would be necessary to ensure that all participants have a profound knowledge of it. This subset of attendees is potentially misrepresented in the sample.

The outlined limitations offer various opportunities to be explored in future research. Focusing on further generations and/or taking a deeper look into differences regarding consumers' evaluations of circular-designed POS display could be insightful for marketers to develop unique and customized strategies. Additionally, the retailer and manufacturer perspective should not be neglected. Moreover, a realistic shopping experience for consumers with

additional sensory stimuli such a sight, smell, or touch should be depicted helping to get a clear description of customer journeys when purchasing confectionery from circular-designed POS displays. Furthermore, a company/brand assessment can be carried out based on case studies investigating companies positioning, their role in society, and the profitability of circular-designed POS displays Additionally, an in-depth analysis of different circular materials could be explored. As this research does not provide information regarding specific behavioral actions, future research should elaborate on how PI transfer to behavioral actions.

8.4 Conclusion

The FMCG industry is facing an increasing challenge of waste, especially resulting from German confectionery manufactures' POS marketing initiatives such POS displays. Only promoting confectionery in circular-designed POS displays does not reach Gen Zers or even fullfill the expectations for a more environmentally-friendly world. Wherefore, manufacturers need to rethink their POS marketing strategy. It is essential for companies to educate consumers to a successfull transition towards a CE, more specifically, circular-designed POS displays, because buying confectionery accounts to the impulsive nature, where consumers decide quickly and often overlook POS display materials. This will lead to a strong competitive advantage for confectionery manufacturers as sustainability and ecological oriented consumers have the power to impact a firm's profitability.

After conducting a qualitative and quantitative research, the investigation diminishes the lack of research concerning German Gen Z's perception of circular-designed POS displays. This study reveals relationships between the environmental beliefs of Gen Z, circular-designed POS display attributes, CMER, EC, PI, and WTP with regard to the theory of CE based on the SOR model. Currently, German Gen Zers possess varying levels of CE awareness however, the concept of CE is not yet established among young individuals, which is why businesses must start educating them.

Further research is recommended to gain more insights in the context of CE. Nevertheless, this research provides a good first guidance for professionals either in research or business. Starting the promotion of confectionery in a circular-designed POS displays will attract young consumers manufacturers will create a competitive advantage allowing them to remain competitive in the highly contested confectionery market. Overall, the balancing act between revenue, cost, and future viability will be one of the biggest upcoming challenges for German confectionery manufacturers.

9 LITERATURE

Ahrens, S. (2024a). Süßwarenmarkt Deutschland: Konsum und Verbraucherverhalten. Statista. Retrieved 15/02/2024 from: https://de.statista.com/themen/4309/suesswarenmarkt-deutschland/#topicOverview

Ahrens, S. (2024b). Süßwaren: Herstellung und Marken. Statista. Retrieved 15/02/2024 from: https://de.statista.com/themen/434/suesswaren/#editorsPicks

Ajzen, I. (1991). The theory of planned behavior. Vol. 50, p. 179-211. Doi: 10.1016/0749-5978(91)90020-T

Albers, S., Klapper, D., Konradt, U., Walter, A., & Wolf, J. (2009). Methodik der empirischen Forschung (3rd ed.). Gabler Verlag. Wiesbaden.

ASA, BDE, BDSAV, BDSV, bvse, DGAW, InwesD, ITAD, KdK, IFAT, Plastics-Europe, VDMA, VDM, VHI, & VKU. (2020). Statusbericht der deutschen Kreislaufwirtschaft. Retrieved on 06/02/2024 from https://www.bvse.de/dateien2020/2-PDF/01-Nachrichten/01-bvse/2020/November/Statusbericht_der_deutschen_Kreislaufwirtschaft_2020.pdf

Atkinson, L., & Rosenthal, S. (2014). Signaling the Green Sell: The Influence of Eco- Label Source, Argument Specificity, and Product Involvement on Consumer Trust. Journal of Advertising, Vol. 43, pp. 33-45. Doi:10.1080/00913367.2013.834803

Ayten, A., Bulat, S., & Inceismail, E. (2019). A Study of Generation Z Viewing Habits in Context of Uses and Gratification Theory: The Protector Netflix Series Case. In D. Yengin & A. Algun (Eds.), Communication and Technology Congress 2019, pp. 1–11. Doi: 10.7456/ctc_2019_01

Babin, B. J., Darden, W. R., & Griffin, M. (1994). Work and/or fun: measuring hedonic and utilitarian shopping value. Journal of Consumer Research. No. 4, pp. 644–656.

Bagchi, R., & Cheema, A. (2013). The effect of red background color on willingness-to-pay: the moderating role of selling mechanism. J Consum Res. Doi: 10.1086/666466

Banterle, A., Cavaliere, A., & Ricci, E. (2012). Food labelled information. An empirical analysis of consumer preferences. Int. J. Food Syst. Dyn., pp. 156-170

Baptista, L., Valentin, D., Saldaña, E., & Behrens, J. (2021). Effects of packaging color on expected flavor, texture, and liking of chocolate in Brazil and France. International Journal of Gastronomy and Food Science.

Bar Am, J., Doshi, V., Frey, S., Malik, A., & Noble, S. (2023). Consumers care about sustainability—and back it up with their wallets. Nielsen IQ and McKinsey & Company. Retrieved on 27/02/2024 from: https://nielseniq.com/wp-content/uploads/sites/4/2023/02/Consumers-care-about-sustainability—and-back-it-up-with-their-wallets-FINAL.pdf

Behrens, G. (1991). Konsumentenverhalten – Entwicklungen, Abhängigkeiten, Möglichkeiten. 2. Aufl. Heidelberg.

Birgelen, M., Semeijn, J., & Keicher, M. (2009). Packaging and Proenvironmental Consumption Behavior - Investigating Purchase and Disposal Decisions for Beverages. Environment and Behavior, pp. 125-146.

Blanz, M. (2015). Forschungsmethoden und Statistik für die Soziale Arbeit: Grundlagen und Anwendungen. Stuttgart: Kohlhammer.

Boesen, S., Bey, N., & Niero, M. (2019). Environmental sustainability of liquid food packaging: Is there a gap between Danish consumers' perception and learnings from life cycle assessment? Journal of Cleaner Production. Vol 2018, pp. 1193 - 1206. Doi:10.1016/j.jclepro.2018.11.055

Boße, J. (2021). Grüne Mission – Nachhaltige Verkaufsförderung. www.display.de. Retrieved on 13/02/2024 from: https://www.display.de/nachhaltige-verkaufsfoerderung

Boywitt, C.D. (2015). Non-monotonic relationships between emotional arousal and memory for color and location. Cogn. Emot. 29 (8), pp. 1335-1349.

Boz, Z., Korhonen, V. & Sand, C. (2020). Consumer Considerations for the Implementation of Sustainable Packaging: A Review. Vol. 12, pp.1-34. Doi: 10.33 90/su12062192

Brennan, G., Tennant, M., & Blomsma, F. (2015). Business and production solutions: closing loops and the circular economy. In: Kopnina, H., Blewitt, J. (Eds.), Sustainability: Key Issues. Routledge, London, United Kingdom.

Burner, G.C., II. (1998). Standardization and justification: do Aad scales measure up? J. Curr. Issues Res. Advert. 20 (1), pp. 1–18.

Burner, G.C., II. (2009). Marketing Scales Handbook – A Compilation of Multi-item Measures for Consumer Behavior and Advertising Research 5th ed. GCBII, Carbondale.

Burns A. C., Veeck A., Busch R. F. (2017). Marketing Research (8th ed.). Pearson.

Centobelli, P., Cerchione, R., Chiaroni, D., Del Vecchio, P., & Urbinati, A. (2020). Designing business models in circular economy: a sys- tematic literature review and research agenda. Business Strategy and the Environment, 29, pp. 1734–1749.

Chauhan, C., Parida, V., & Dhir, A. (2022). Linking circular economy and digitalisation technologies: A systematic literature review of past achievements and future promises, Technological Forecasting and Social Change. Vol. 177.

Chen, H., Marmorstein, H., Tsiros, M., & Rao, A.R. (2012). When more is less: the impact of base value neglect on consumer preferences for bonus packs over price discounts. Journal of Marketing,Vol. 76. No. 4, pp. 64-77.

Choi, D., & Johnson, K.K.P. (2019). Influences of environmental and hedonic motivations on intention to purchase green products: an extension of the theory of planned behavior. Pp. 145-155. Doi: https://doi.org/10.1016/j.spc.2019.02.001.

Cleff, T. (2015). Deskriptive Statistik und Explorative Datenanalyse: Eine computergestützte Einführung mit Excel, SPSS und STATA (3., überarb. u. erw. Aufl. 2015). SpringerLink : Bücher. Wiesbaden: Gabler Verlag.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, N.J.: L. Erlbaum Associates.

Cresswell, J. W., & Clark, V. L. P. (2011). Designing and conducting mixed methods research.

Dale, T. (2023). What Is MDF? Everything You Need to Know. Retrieved on 28/02/2024 from: https://www.thespruce.com/what-is-mdf-1398198

Delia, D. (2010). Review concerning the functions of packaging. Land Forces Academy Review. Vol. 1. No. 57. pp. 44-49.

Dodds, W.B., Monroe, K.B., & Grewal, D. (1991). Effects of price, brand, & store information on buyers' product evaluations. Journal of Marketing Research, pp.307-319.

Donovan, R. J., & Rossiter, J. R. (1982). Store Atmosphere: An Environmental Psychology Approach. Journal of Retailing. Vol. 58. Issue 1. pp. 34-57.

Drèze, X., Hoch, S.J., & Purk M.E. (1995). Shelf Management and Space Elasticity. Journal of Retailing. Vol. 70 Issue 4. pp. 301–26.

Dzhengiz, T., Miller, E. M., Ovaska, J. P., & Patala, S. (2023). Unpacking the circular economy: A problematizing review. International Journal Of Management Reviews. 25, 2, pp. 270-296.

EEA. (2022). Consumers can play key role in creating demand for circular goods and services. Retrieved on 13/03/2024 from: https://www.eea. europa.eu/highlights/consumers-can-play-key-role

Els, B., & Campo, K. (2011). Effectiveness of In-Store Displays in a Virtual Store Environment. Journal of Retailing. 87. pp. 75-89. Doi: 10.1016/j.jretai.2010.09.003.

Eroglu, S.A., Machleit, K.A., & Davis, L. M. (2001). Atmospheric qualities of online retailing: A conceptual model and implications. Journal of Business Research. Vol. 54. Issue 2. pp. 177-184. Doi: https://doi.org/10.1016/S0148-2963(99)00087-9.

Eroglu, S.A., Machleit, K.A., & Davis, L. M. (2003). Empirical testing of a model of online store atmospherics and shopper responses. Psychol. Market. Vol. 20. Issue 2. pp. 139-150.

European Commission. (n.d. b). European Green Deal. Retrieved on 13/03/2024 from: https: //ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_de

European Commission. (2016). Closing the loop – new Circular Economy package. Retrieved on 07/02/2024 from: http://www.europarl.europa.eu/RegData/etudes /BRIE/2016/573899/EPRS_BRI(2016)573899 _EN.pdf

European Commission. (2020). Der Aktionsplan für die Kreislaufwirtschaft. Für ein sauberes und wettbewerbsfähigeres Europa. Retrieved on 13/03/2024 from: https:/ /eur-

lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed 71a1.0016.02/DOC_1&for mat=PDF

European Commission. (n.d. a.). Plastics strategy. Retrieved on 13/03/2024 from: https://en vironment.ec.europa .eu/strategy/plastics-strategy_en

European Commission. (n.d. c). First circular economy action plan. Retrieved on 13/03/2024 from: https://environment.ec.europa.eu/topics/circular-economy/first-circular-econo my-action-plan_en

European Environment Agency (EEA). (2021). Circular by design. Products in the circular economy. EEA Report. No. 6. Doi: 10.2800/860754

European Parliament (2023). Circular economy: definition, importance and benefits. Retrieved on 13/03/2024 from: https://www.europarl.europa.eu/news/en/headlines/-economy/20151201STO05603/circular-economy-definition-importance-and-benefits

Farooq, S., Habib, S., & Aslam, S. (2015). Influence of product packaging on consumer purchase intentions. Int J Econ Commer Manag.

Franck, A. et al. (2018). 4. Regressionsanalyse, in Franck, A. et al. (eds.) Marketing-Forschung: Grundlagen der Datenerhebung und Datenauswertung: Verlag Franz Vahlen GmbH, pp. 111-142.

Franco, S., & Cicatiello, C. (2019). The Role of Food Marketing in Increasing Awareness of Food Security and Sustainability: Food Sustainability Branding. *Encyclopedia of Food Security & Sustainability.* pp. 27-31. Doi: https://doi.org/10.1016/B978-0-08-100596-5.22018-0.

Gage, J. (1999). Color and culture: practice and meaning from antiquity to abstraction. University of California Press.

Gedenk, K. (2002). Verkaufsförderung. München: Franz Vahlen Verlag.

Gedenk, K. (2004). Markenführung und Verkaufsförderung, in: Bruhn, M. (Hrsg.): Handbuch Markenführung. Stuttgart, pp. 1513–1534.

Gershoff, A.D., & Frels, J.K. (2015). What makes it green? The role of centrality of green attributes in evaluations of the greenness of products. Journal of Marketting, 79.

Ghisellini, P., Cialani, C. & Ulgiati, S. (2016). A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems. Journal of Cleaner Production, 114, pp. 11-32.

Gomes, S., Lopes, J. M., & Nogueira, S. (2023). Willingness to pay more for green products: A critical challenge for Gen Z. Journal of Cleaner Production, Vol. 390. Doi: https://doi.org/10.1016/j.jclepro.2023.136092.

Gorn, GJ, Chattopadhyay, A, Sengupta, J., & Tripathi, S. (2004). Waiting for the web: how screen color affects time perception. J Mark Res. Doi: 10.1509/jmkr.41.2.215.28668

Griskevicius, V., Tybur, J.M., & Van den Bergh, B. (2010). Going green to be seen: status, reputation, and conspicuous conservation. J. Pers. Soc. Psychol. 98 (3), pp. 392–404.

Grunert, K. (2011). Sustainability in the food sector: a consumer behaviour perspective. pp. 207-218.

Grunert, K., & Wills, J. (2007). A review of European research on consumer response to nutrition information on food labels. Journal. Public Health, pp. 385-399.

Han, Y., Chandukala, S.R., & Li, S. (2022). Impact of different types of in-store displays on consumer purchase behavior. Journal of Retailing. Vol. 98. Issue 3. pp. 432-452. Doi: https://doi.org/10.1016/j.jretai.2021.10.002.

Hao, Y., Liu, H., Chen, H., Sha, Y., Ji, H., & Fan, J. (2019). What affect consumers' willingness to pay for green packaging? Evidence from China. pp. 21–29.

Havemann, I. (2014). Den Shopper richtig verstehen. Shopper Marketing. Retrieved on 07/02/2024 from: https://www.ipsos.com/sites/default/files/2017-03/markenartikel%201-2_2014%20S.%2048-49.pdf

Haws, K.L., Winterich, K.P., & Naylor, R.W. (2014). Seeing the world through GREEN-tinted glasses: green consumption values and responses to environmentally friendly products. J. Consum. Psychol. 24 (3), pp. 336-354.

He, H., Wang, C., Wang, S., Ma, F., Sun, Q., & Zhao, X. (2021). Does environmental concern promote EV sales? Duopoly pricing analysis considering consumer heterogeneity. Doi: https://doi.org/10.1016/j.trd.2021.102695.

Hennigs, N., Schmidt, S., Wiedmann, K.P., Karampournioti, E., & Labenz, F. (2017). Measuring brand performance in the cruise industry: brand experiences and sustainability orientation as basis for value creation. Int. J. Serv. Technol. Manag. Vol. 23. Issue 3. p.189. Doi: https://doi.org/10.1504/IJSTM.2017.085473.

Herbes, C., Beuthner, C., & Ramme, I. (2018). Consumer attitudes towards biobased packaging: A cross-cultural comparative study. Journal of Cleaner Production, Vol. 194, pp. 203-218. Doi: 10.1016/j.jclepro.2018.05.106.

Herbes, C., Beuthner, C., & Ramme, I. (2020). How green is your packaging - A comparative international study of cues consumers use to recognize environmentally friendly packaging. International Journal of Consumer Studies. Vol. 44, pp. 258-271. Doi: 10.1111/ijcs.12560.

Hietler, P., Meissner, M., & Pladerer, C. (2020). Das LOOPOS Mehrweg-Display. Bilanzierung des CO2-Footprints, für Mehrweg-Verkaufsdisplays am Point of Sale. In: Pulswerk-Das Beratungsunternehmen des Österreichischen Ökologie Instituts.

Hollen, J. (2020). 3 Ways to Create Emotional Connection Through Retail POP Displays. Retrieved on 12/02/2024 from: https://blog.richltd.com/3-ways-to-create-emotional-connection-through-retail-pop-displays/

Horstmann, F. (2017). Measuring the shopper's attitude toward the point of sale display: Scale development and validation. Journal of Retailing and Consumer Services. Vol. 36. pp. 112-123. Doi: https://doi.org/10.1016/j.jretconser.2017.01.011

Horstmann, F., & Lingenfelder, M. (2015). POS-Marketing-Verbesserung durch die Integration von Dienstleistern in die Hersteller-Handels-Zusammenarbeit am Beispiel von Display-Promotions. In: M. Bruhn, & K. Hadwich - Interaktive Wertschöpfung durch Dienstleistungen: Strategische Ausrichtung von Kundeninteraktionen, Geschäftsmodellen und sozialen Netzwerken (pp. 541-566). Wiesbanden: Springer Fachmedien.

Howard-Grenville, J., Davis, G.F., Dyllick, T., Miller, C.C., Thau, S., & Tsui, A.S. (2019). Sustainable development for a better world: contributions of leadership, management, and organizations. Academy of Management Discoveries, 5, pp. 355–366.

Hu, Y., Frank, B., & Lu, Z. (2022). Market success through recycling programs: Strategic options, consumer reactions, and contingency factors. Journal of Cleaner Production. Vol. 353. Doi: 10.1016/j.jclepro.2022.131003

Hwang, M., & Thomadsen, R. (2015). How Point-of-Sale Marketing Mix Impacts National-Brand Purchase Shares. Management Science. Vol.62 Issue 2. pp. 571-590. Doi: https://doi.org/10.1287/mnsc.2014.2113

Intersnack. (2022). Sustainability Report. Retrieved on 27/02/2024 from: https://www.intersnackgroup.com/fileadmin/intersnackgroup.com/sustainability/Sustainability_Report/Intersnack_Sustainability_Progress_Report_2022.pdf

Jabbour, C. J. C., Jabbour, A. B. L. S., Sarkis, J., & Filho, M. G. (2019). Unlocking the circular economy through new business models based on large-scale data: An integrative framework and research agenda. *Technological Forecasting and Social Change.* Vol. 144. pp. 546-552. Doi: https://doi.org/10.1016/j.techfore.2017.09.010.

Jäger, A. K., & Weber, A. (2020). Increasing sustainable consumption: message framing and in-store technology. *International Journal of Retail & Distribution Management*. Vol. 48 No. 8, pp. 803-824. Doi: https://doi.org/10.1108/IJRDM-02-2019-0044**.**

Jain, V., Vatsa, R., & Jagani, K. (2014). Exploring Generation Z's Purchase Behavior towards Luxury Apparel: a Conceptual Framework, Romanian Journal of Marketing (2), pp. 18-29.

Jaiswal, D., & Kant, R., (2018). Green purchasing behaviour: a conceptual framework and empirical investigation of Indian consumers. Journal of Retailing. pp. 60-69. Doi: https://doi.org/10.1016/j.jretconser.2017.11.008.

Janson, M. (2020). Konsum – Die beliebtesten Süßigkeiten der Deutschen. Retrieved on 26/02/2024 from: https://de.statista.com/infografik/23644/befragte-die-mindestens-woechentlich-folgende-suessigkeiten-verzehren/

Jerzyk, E. (2016). Design and communication of ecological content on sustainable packaging in young consumers' opinions. J. Food Prod. Mark., pp. 707-716.

Kara, A., & Min, M.K. (2024). Gen Z consumers' sustainable consumption behaviors: influencers and moderators, International Journal of Sustainability in Higher Education, Vol. 25. pp. 124-142. Doi: https://doi.org/10.1108/IJSHE-08-2022-0263

Ketelsen, M., Janssen, M., & Hamm, U. (2020). Consumers' response to environmentally-friendly food packaging - A systematic review. Journal of Cleaner Production. Doi: 10.1016/j.jclepro.2020.120123

Khare, A. (2015). Antecedents to green buying behaviour: A study on consumers in an emerging economy. Marketing Intelligence & Planning. pp. 309-329. Doi: 10.1108/ MIP-05-2014-0083

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: an analysis of 114 definitions. Resources, Conservation and Recycling, 127. pp. 221–232.

Kissel, R., & Poserina, J., (2017). Optimal Sports Math, Statistics, and Fantasy. Elsevier Ltd.

Koenig-Lewis, N., Palmer, A., Dermody, J., & Urbye, A. (2014). Consumers' evaluations of ecological packaging – rational or emotional? Journal of Environmental Psychology, Vol. 37, pp. 94-105. Doi: 10.1016/j.jenvp.2013.11.009

Kolbrück, O. (2023). Zweitplatzierungen: Die Favoriten und die "No Gos". Studie bei Rewe und Edeka von Bormann & Gordon. Retrieved on 12/02/2024 from: https://www.lzdirekt.de/pos-wissen/news/zweitplatzierung-studie-handel-1363

Kotler, P. (2011). Reinventing marketing to manage the environmental imperative. Journal of Marketing, 75(4), pp. 132-135.

Kotler, P., & Armstrong, G. (2021). Principles of Marketing, Global eighteenth ed. Pearson.

Kreislaufwirtschaftsgesetz in der Fassung der Bekanntmachung vom 24.02.2012 (BGBl. I 212). Retrieved on 07/03/2024 from: https://www.gesetze-im-internet.de/krwg/

Kristensen, H. S., & Mosgaard, M. A. (2020). A review of micro level indicators for a circular economy – moving away from the three dimensions of sustainability. Journal of Cleaner Production. Vol. 243. Doi: https://doi.org/10.1016/j.jclepro.2019.118531.

Kroeber-Riel, W., & A. Gröppel-Klein. (2013). Konsumentenverhalten. 10. Aufl. München: Vahlen.

Kuß, A., Wildner, R., & Kreis, H. (2018). Marktforschung: Datenerhebung und Datenanalyse (6th ed., revised). Springer Gabler. Wiesbaden.

Law, D., Wong, C., & Yip, J. (2012). How does visual merchandising affect consumer affective response? European Journal of Marketing. pp. 112-133.

Lee, B. K. & Lee, W. N. (2011). The Impact of Product Knowledge on Consumer Product Memory and Evaluation in the Competitive Ad Context: The Item-Specific-Relati onal Perspective. Psychology & Marketing, pp. 360-387. Doi: 10.1002/mar.203 60.

Lemke, E., & Nessel, C. (2021). Zirkulärer Konsum – was prosument und Steward unterscheidet. Retrieved on 24/02/2024 from: https://thinking-circular.com/de/zirkulaerer-konsum-was-prosument-und-steward-unterscheidet/

Lewis, R. (2022). The Linear Economy vs. a Circular Economy: Models for a Green Future. Globis Insights. Retrieved on 22.04.2022 from: https://globisinsights.com/purpose /sustainability/linear-vs-circular-economy/

Li, M., Jia, N., Lenzen, M., Malik, A., Wei, L., Jin, Y., & Raubenheimer, D. (2022). Global food-miles account for nearly 20% of total food-systems emissions. Nat Food 3, pp. 445–453. Doi: https://doi.org/10.1038/s43016-022-00531-w

Liebmann, H., Zentes, J., & Swoboda, B. (2008). Handelsmanagement. München.

Ließ, A. (2021). Grüne Mission – Nachhaltige Verkaufsförderung. www.display.de. Retrieved on 13/02/2024 from: https://www.display.de/nachhaltige-verkaufsfoerderung

Lindh, H., Olsson, A., & Williams, H. (2016). Consumer Perceptions of Food Packaging: Contributing to or Counteracting Environmentally Sustainable Development? Packaging and Technology and Science, pp. 3-23.

Lindt & Sprüngli. (2022). Sustainability Report. Retrieved on 27/02/2024 from: https://www.lindt-spruengli.com/amfile/file/download/id/7865/file/Lindt-und-Spruengli-Sustainability-Report-2022.pdf

Lüdeke-Freund, F., Gold, S., & Bocken, N.M.P. (2018). A review and typology of circular economy business model patterns. Journal of Industrial Ecology, 23, pp. 36–61.

MacArthur (2013). Towards the Circular Economy: Economic and business rationale for an accelerated transition. Retrieved on 06/03/2024 from: https://ellenmacarthurfoundation.org/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an

Magnier, L., & Schoormans, J. (2017). How Do Packaging Material, Color and Environmental Claim Influence Package, Brand and Product Evaluations? Packaging Technology and Science, Vol. 30, pp. 735-751. Doi: 10.1002/pts.2318

Magnier, L., &Crié, D. (2015). Communicating packaging eco-friendliness: An exploration of consumers' perceptions of eco-designed packaging. International Journal of Retail & Distribution Management, Vol. 43, pp. 350-366.

Magnier, L., Schoormans, J., & Mugge, R. (2016). Judging a product by its cover: Packaging sustainability and perceptions of quality in food products. Food Quality and Preference. Vol. 53, pp. 132-142. Doi:10.1016/j.foodqual.2016.06.006

Mair, R.G., Onos, K.D., & Hembrook, J.R., (2011). Cognitive activation by central thalamic stimulation: the Yerkes-Dodson law revisited. Dose-Response 9. pp. 313-331.

Martins, A. (2023). Most Consumers Want Sustainable Products and Packaging. Retrieved on 12/02/2024 from: https://www.businessnewsdaily.com/15087-consumers-want-sustainable-products.html

Mayring, P. (2014). Qualitative content analysis: theoretical foundation, basic procedures and software solution. Retrieved on 107/03/2024 from: https://nbn-resolving.org/urn:nbn:de:0168-ssoar-395173

McColl, R., Macgilchrist, R., & Rafiq, S. (2020). Estimating cannibalizing effects of sales promotions: The impact of price cuts and store type. Journal of Retailing and Consumer Services. Vol. 53. Doi: https://doi.org/10.1016/j.jretconser.2019.101982.

McKinsey. (2016). Developing products for a circular economy. Retrieved on 08/02/2024 from: https://www.mckinsey.com/business-functions/sustainability/our-insights/developing-products-for-a-ci rcular-economy

Meffert, H., & Bruhn, M. (2012). Dienstleistungsmarketing: Grundlagen – Konzepte – Methoden Bd. 7. Wiesbaden: Gabler. pp. 5-6.

Meffert, H., Burmann, C., Kirchgeorg, M., Eisenbeiß, M., & Meffert, H. (2019). Marketing: Grundlagen marktorientierter Unternehmensführung: Konzepte - Instrumente – Praxisbeispiele. 13th edition. Wiesbaden: Springer Gabler.

Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. Cambridge, MA, US: The MIT Press.

Mehta, R., & Zhu, R. (2009). Blue or red? Exploring the effect of color on cognitive task performances. Science. Doi: 10.1126/science.1169144

Meola, A. (2023). Generation Z News: Latest characteristics, research, and facts. Retrieved on 07/02/2024 from: https://www.insiderintelligence.com/insights/generation-z-facts/

Mishra, P., Jain, T., & Motiani, M. (2017). Have green, pay more: An empirical investigation of consumer's attitude towards green packaging in an emerging economy. In Essays on Sustainability and Management; Springer: Singapore. pp. 125–150.

Mizia S., Felińczak A., Włodarek D., & Syrkiewicz-Świtała M. (2021). Evaluation of Eating Habits and Their Impact on Health among Adolescents and Young Adults: A Cross-Sectional Study. Int J Environ Res Public Health. Doi: 10.3390/ijerph18083996. PMID: 33920229; PMCID: PMC8069612.

Mondres, T. (2023). How Generation Z is changing Financial Services? Retrieved on 15/03/2024 from: https://bankingjournal.aba.com/2019/01/how-generation-z-is-changing-financial-services/

Mr. Flexx. (n.d. a). Bio-based Display Solutions. Website. Retrieved on 28/02/2024 from: https://www.mrflexx.com/de/displays-de/bio-based/

Murray, A., Skene, K., & Haynes, K. (2017). The circular economy: an interdisciplinary exploration of the concept and application in a global context. *J. Bus. Ethics*. Vol. 140 Issue 3. pp. 369–380. Doi: 0.1007/s10551-015-2693-2

Nägele, T. (2021). Grüne Mission – Nachhaltige Verkaufsförderung. www.display.de. Retrieved on 13/02/2024 from: https://www.display.de/nachhaltige-verkaufsfoerderung

Neff, J. (2008). In-Store Displays Are More Effective Than Price Cuts. Advertising Age. Retrieved on 14/02/2024 from: http:// adage.com/ article/ news/store-displays-effective-price-cuts/132767

Nicasio, F. (2021). 9 Biodegradable Packaging Materials That Can Replace Plastic. noissue.co. Retrieved on 12/03/2024 from: https://noissue.co/blog/biodegradable-packaging-materials-that-can-replace-plastic/

Nicolaus, F. (2021). Circularity is the next frontier of sustainability. What is it? Retrieved on 06/03/2024 from: https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en

Nießner, N., & Jahnke, E. (2020). Nachhaltigkeit im Fokus. Kunststoffe. pp. 38-44

Nunan, D., Birks D.F. & Malhotra, N.K. (2020). Marketing Research Applied Insight. 6th Edition. p. 203.

Nystrand, B.T., & Olsen, S.O. (2020). Consumers' attitudes and intentions toward consuming functional foods in Norway. Food Quality and Preference. Vol. 80, p. 103827.

OC&C. (2019). Eine Generation ohne Grenzen. Generation Z wird erwachsen. Retrieved on 15/03/2024 from: https://www.occstrategy.com/media/1904/eine-generation-ohne-grenzen_.pdf, pp. 14-21.

Oke, A., Osobajo, O., Obi, L., & Omotayo, T. (2020). Rethinking and optimising post-consumer packaging waste: A sentiment analysis of consumers' perceptions towards the introduction of a deposit refund scheme in Scotland. Waste Management. Vol. 108, pp. 463- 470. Doi: 10.1016/j.wasman.2020.09.008

Palomo, I., Zambrano, R., & Álvarez-Rodríguez, V. (2023). Gen Z's Motivations towards Sustainable Fashion and Eco-Friendly Brand Attributes: The Case of Vinted. Sustainability. Doi:10.3390/su15118753.

Park, J., Stoel, L., & Lennon, S.J. (2008). Cognitive, affective and conative responses to visual simulation: the effects of rotation in online product presentation. Journal of Consumer Behaviour. Vol. 7 No. 1. pp. 72-87.

Patton, M. Q. (2002). Qualitative research & evaluation methods. In SAGE Publications eBooks (Nummer 1).

Pearce, D. W. (1990). Economics of natural resources and the environment. Baltimore: Johns Hopkins University Press.

Philips, M., Parsons, A.G., Wilkinson, H.J., & Ballantine, P.W. (2015). Competing for attention with in-store promotions. J. Retail. Consum. Serv. 26. pp. 141-146.

Pieroni, M.P.P., McAloone, T.C., & Pigosso, D.C.A. (2019). Business model innovation for circular economy and sustainability: a review of approaches. *Journal of Cleaner Production*, 215, pp. 198-216.

Popovic, I., Bossink, B., & Sijde, P. (2019). Factors Influencing Consumers' Decision to Purchase Food in Environmentally Friendly Packaging: What Do We Know and Where Do We Go from Here?. Sustainability. Vol. 11. pp.1-22. Doi: 10.3390/ su11247197.

Potting, J., Hekkert, M., Worrell, E., & Hanemaaijer, A. (2017). Circular Economy: Measuring Innovation in the Product Chain. Retrieved on 05/02/2024 from: http://www.pbl.nl/sites/default/files/cms/publicaties/pbl2016-Circular-economy-measuring-innovation-in-product-chains-2544.pdf.

Prakash, G., & Pathak, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of Cleaner Production.* pp. 385-393

Priporas, C.-V., Stylos, N., & Fotiadis, A.K. (2017) Generation Z consumers' expectations of interactions in smart retailing: A future agenda, Computers in Human Behavior, 77, pp. 374–381. Doi: 10.1016/j.chb.2017.01.058.

PwC. (2022). Consumers respond to Waves of Disruption. *Global Consumer Insights Pulse Survey.* Retrieved on 27/01/2024 from: https://www.pwc.com/gx/en/consumer-markets/consumers-respond-to-waves-of-disruption/gcis-report-june-2022.pdf

Qualtrics. (2022). Stichprobe – Optimale Stichprobengröße berechnen. Qualtrics. https://www.qualtrics.com/de/erlebnismanagement/marktforschung/online-stichproben/

Raab, G., Goddard, G.J., Ajami, A. A., & Unger, A. (2016). The psychology of marketing: cross-cultural perspectives. Gower Publishing, New York.

Rao, A., & Monroe, K. (1988). The Moderating Effect of Prior Knowledge on Cue Utilization in Product Evaluations. Journal of Consumer Research. Vol. 15, p. 253-64. Doi: 10.1086/209162.

Rejman, K., Halicka, E., Szczebyło, A., & Górska-Warsewicz, H. (2019). Impact of food sustainability labels on the perceived product value and price expectations of urban consumers. Sustainability. Vol. 11 Issue 24. Doi: https://doi.org/10.3390/su11247240

Ripple, W.J., Wolf, C., Newsome, T.M., Galetti, M., Alamgir, M., & Crist, E. (2017). World scientists' warning to humanity: a second notice. Bioscience, 67, pp. 1026–1028.

Ritter Sport. (2022) Sustainability Report. Retrieved on 27/02/2024 from: https://irp.cdn-website.com/6cb74a62/files/uploaded/NHB_2022_DE-ea79ae36.pdf

Santini, F. O., Sampaio, C., Perin, M., G. & Vieira, V. A. (2015). An analysis of the influence of discount sales promotion in consumer buying intent and the moderating effects of attractiveness. Revista de Administração, Vol. 50, Issue 4. pp. 416-431. Doi: https://doi.org/10.5700/rausp1210.

Sarma, S. (2014). A study of Retail Display and Impulse Buying Behavior. *Journal of Marketing and Consumer Research. Vol. 4. pp.* 51-55.

Schally, H. M. (2020). Kreislaufwirtschaft in der EU – eine Zwischenbilanz. Wiesbaden: Springer Gabler Verlag, pp. 3-7.

Schally, H.M. (2018). Die europäische Union und ihre Mitgliedsstaaten auf dem Weg in die Kreislaufwirtschaft in: Europainfo – Das Magazin des EU – Umweltbüros, pp. 4f. Retrieved on 13/03/2024 from: https://www.eu-umweltbuero.at/assets/Uploads /EUropainfo-2-18-web.pdf

Schnetzer, S. (2023). Trendstudie - Jugend in Deutschland 2023 mit Generationenvergleich. Retrieved on 17/02/2024 from: https://simon-schnetzer.com/jugend-in-deutschland-2023-mit-generationenvergleich/

Schramm-Klein, H., Mau, G., Dassel, M., Gläser, J., & Schmoll, E. (2013). Wie wirken Promotionstechniken am POS? Ergebnisse einer Kundenlaufstudie. Planung & Analyse (1), pp. 1-33.

Schulz, R. (1972). Kaufentscheidungsprozesse des Konsumenten, Wiesbaden.

Schumacher Packaging. (2019). Auf Platz Eins mit Zweitplatzierungen. Warum Displays und Promotionverpackungen am POS punkten. Retrieved on 28/02/2024 from: https://www.schumacher-packaging.com/fileadmin/user_upload/general/downloads/2020_Schumacher_Packaging_e_book_Displays_Copacking_DE.pdf

Schuppler, N., & Saldsieder, K. A. (2023). Chocolate Packaging in a Circular Economy: Investigating the Consumer Perception, Purchase and Recycling Intention with regards to the German Chocolate Industry. Interdisziplinary Management Research XIX. pp. 799 - 821

Schwartz S. H., & Howard J. A. (1981). A Normative Decision-Making Model of Altruism. p. 189-211.

Scott, L., & Vigar-Ellis, D. (2014). Consumer understanding, perceptions and behaviours with regard to environmentally friendly packaging in a developing nation. International Journal of Consumer Studies. p. 642-649.

Seitel Display (n.d.) Verkaufsdisplays für jede Branche. Website. Retrieved on 27/02/2024 from: https://www.seitel.de

Shao, W., Grace, D., & Ross, M. (2019). Consumer motivation and luxury consumption: Testing moderating effects. Journal of Retailing and Consumer Services. Elsevier. Vol. 46, pp. 33-44.

Sharma, A., & Foropon, C. (2019). Green product attributes and green purchase behavior: a theory of planned behavior perspective with implications for circular economy. Manag. Decis. Vol. 57. Issue 4. pp. 1018–1042. Doi: https://doi.org/10.1108/MD-10-2018-1092.

Shin, H., Eastman, J., & Li, Y. (2021). Is it love or just like? Generation Z's brand relationship with luxury, Journal of Product & Brand Management, ahead- of-print(ahead-of-print). Doi: 10.1108/JPBM-08-2020-3049

Sijtsema, S., Onwezen, M., Reinders, M., Dagevos, H., Partanen, A., & Meeusen, M. (2016). Consumer perception of bio-based products: an exploratory study in 5 European countries. NJAS - Wageningen J. Life Sci. Vol. 77, pp. 61-69.

Simmonds, G., & Spence, C. (2017). Thinking inside the box: how seeing products on, or through, the packaging influences consumer perceptions and purchase behaviour. Food Qual Prefer. Doi: 10.1016/j.foodqual.2016.11.010

Simmons, K-J. (2023). 16 Effective POS Marketing Ideas for Driving Sales. Retail – Tip List. Retrieved on 14/03/204 from: https://fitsmallbusiness.com/point-of-sale-marketing-ideas/

Singh, G., & Pandey, N. (2018). The determinants of green packaging that influence buyers' willingness to pay a price premium. pp. 221-230.

Spack, J.A., Board, V.E., Crighton, L.M., Kostka, P.M. & Ivory, J.D. (2012). It's easy being green: the effects of argument and imagery on consumer responses to green product packaging. Environmental Communication, Vol. 6 No. 4. pp. 441-458.

Statista. (2023a). Revenue of the confectionery industry in Germany from 1962 to 2022. Statista. Retrieved 15/02/2024 from: https://www.statista.com/statistics/511990/confectionery-industry-revenue-germany/#

Statista. (2023b). Confectionery revenue per capita in Germany from 2018 to 2028. Statista. Retrieved 15/02/2024 from: https://www.statista.com/statistics/1063818/per-capita-confectionery-revenue-germany/

Statistisches Bundesamt (2022). Generationenanteile in Deutschland. Retrieved on 16/03/2024 from: https://de.statista.com/statistik/daten/studie/1131021/umfrage/generationenanteile-in-deutschland/

Steenis, N. D., Van Herpen, E., Van der Lans, I. A., Ligthart, T. N., & Van Trijp, H. C. (2017). Consumer response to packaging design: The role of packaging materials and graphics in sustainability perceptions and product evaluations. Journal of Cleaner Production, Vol. 162, pp. 286-298.

Sterr, T. (2003). Industrielle Stoffkreislaufwirtschaft im regionalen Kontext. Berlin Heidelberg: Springer Verlag. pp. 57, 165f.

Stotz, P. M., Niero, M., Bey, N., & Paraskevas, D. (2017). Environmental screening of novel technologies to increase material circularity: A case study on aluminium cans. pp. 96-106. Doi: https://doi.org/10.1016/j.resconrec.2017.07.013

Takaya, R. (2019). Antecedents Analysis of Purchase Intention. Business and Entrepreneurial Review. Doi: 10.25105/ber.v16i1.4906.

Tellis, G.J. (1998). Advertising and Sales Promotion Strategy. Reading. MA: Addison-Wesley.

Testa, F., Pretner, G., Iovino, R., Bianchi, G., Tessitore, S., & Iraldo, F. (2021). Drivers to green consumption: a systematic review. Environ. Dev. Sustain. 23, pp. 4826–4880.

Theben, A., Gerards, M., & Folkvord, F. (2020). The effect of packaging color and health claims on product attitude and buying intention. Int J Environ Res Public Health. Doi: 10.3390/ijerph17061991

Towers, I. (2014). Sensory marketing. In Internationale Trends in der Markenkommunikation. Springer Gabler, Wiesbaden. pp. 107-117

Trivedi, R.H., Patel, J.D., & Acharya, N. (2018). Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing. Journal of Cleaner Production, Vol. 196. pp. 11-22.

Uddin, S.M.F. & Khan, M.N. (2018). Young Consumer's Green Purchasing Behavior: Opportunities for Green Marketing', Journal of Global Marketing, Vol. 31, Issue 4, pp. 1-12. doi: 10.1080/08911762.2017.1407982

Underwood, R, & Klein, N.M. (2002). Packaging as brand communication: effects of product pictures on consumer responses to the package and brand. Journal of Marketing Theory and Practice, Vol.10, pp. 58-68. Doi: 10.1080/10696679.2002.1 1501926

United Nations. (n.d.). Sustainable Development Goals. Promote inclusive and sustainable economic growth, employment and decent work for all. Retrieved on 13/03/2024 from: https://www.un.org/sustainabledevelopment/economic-growth/

Van Westendorp, P. H. (1976). NSS-Price-Sensitivity-Meter - A New Approach to Study Consumer Perception of Prices. pp. 139-167.

VDP. (2023). Was sind Dsiplays? Retrieved on 20/02/ 2024 from: https://verpackungen.de/info/display

Venter, K., van der Merwe, D., de Beer, H., Kempen, E., & Bosman, M. (2011). Consumers' perceptions of food packaging. An exploratory investigation in Potchefstroom, South Africa. Int. Journal of Consumer Studies. pp. 273-281.

Packaging Act in the version published on 01.01.2019 (VerpackG). Retrieved on 09/03/2024 from: https://www.bmuv.de/gesetz/gesetz-ueber-das-inverkehrbringen-die-ruecknahme-und-die-hochwertige-verwertung-von-verpackungen

Walker, A.M., Opferkuch, K., & Roos Lindgreen, E. (2021). What Is the Relation between Circular Economy and Sustainability? Answers from Frontrunner Companies Engaged with Circular Economy Practices. Circ. Econ. Sust. pp. 731–758. Doi: https://doi.org/10.1007/s43615-021-00064-7

Wang, Y., Lu, X., & Tan, Y. (2018). Impact of product attributes on customer satisfaction: an analysis of online reviews for washing machines. Electron. Commer. Res. pp. 1-11. Doi: https://doi.org/10.1016/j.elerap.2018.03.003.

Wasi Displays (2022). Projekt & Praxis: Wasi Displays fertigt nachhaltiges Verkaufsdisplay für ecoPhil. Website. Retrieved on 28/02/2024 from: https://www.blog-wasi-displays.de/projekt-praxis-wasi-displays-fertigt-nachhaltiges-verkaufsdisplay-fuer-ecophil/

White, K., Habib, R., & Hardisty, D. J. (2019). How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework. Journal of Marketing. Vol. 83, pp. 22- 49. Doi: 10.1177%2F0022242919825649

White, K., MacDonnell, R., & Ellard, J. H. (2012). Belief in a Just World: Consumer Intentions and Behaviors toward Ethical Products. Journal of Marketing, 76(1), pp. 103–118.

Williams, A. (2015). Move Over, Millennials, Here Comes Generation Z, The New York Times, 18 September. Retrieved on 15/03/2024 from: https://www.nytimes.com/2015/09/20/fashion/move-over-millennials-here-comes-generation-z.html

Wilts, H. (2017). Key Challenges for Transformations Towards a Circular Economy – The Status Quo in Germany. International Journal of Waste Resources. Retrieved on 29/03/2024 from: https://epub.wupperinst.org/frontdoor/deliver/index/docId/6804/file/6804_Wilts.pdf

Wong, T. (2023). Why Brands Need to Embrace Sustainability in their Point of Sale Displays. Retrieved on 12/02/2024 from: https://www.linkedin.com/pulse/why-brands-need-embrace-sustainability-point-sale-displays-wong/

Wozniak, H. (2013). Consumer Behavior: An Applied Approach. Chapter 3. Consumer Perception. 4th edition.

Wunsch, N.G. (2024). Net sales of the leading confectionery companies worldwide in 2023. Statista. Retrieved 15/02/2024 from: https://www.statista.com/statistics/252097/net-sales-of-the-leading-10-confectionery-companies-worldwide/

Xuan, T.D.P. (2024). Understanding the acquisition, usage, and disposal behaviours in sustainable food consumption: A framework for future studies. *Cleaner and Responsible Consumption.* Vol. 12. Doi: https://doi.org/10.1016/j.clrc.2023.100162

Yadav, R., & Pathak, G. S. (2016). Young consumers' intention towards buying green-products in a developing nation: Extending the theory of planned behavior. Journal of Cleaner Production, Vol. 135, pp. 732-739.

Yerkes, R.M., & Dodson, J.D. (1908). The relation of strength of stimulus to rapidity of habit-formation. J. Comp. Neurol. Psychol. 18, pp. 459-482.

Zasche, N. (2018). Wie lang braucht Abfall um zu verrotten? Müll ist nicht gleich Müll. Codecheck. Retrieved on 22.02.2024 from: https://www.codecheck.info/news/Wie-lang-braucht-Abfall-um-zu-verrotten-293241

Zikmund, W.G. (1997). Business Research Methods. Harcourt Canada. 5th Edition.

10 APPENDIX

Appendix A: Examples of POS-Displays

The most common used POS display formats are: (1) ¼ Chep display, (2) ½ Pallet display, (3) big secondary placement, (4) floor standing display, (5) counter display and (6) free formats.

https://www.display.de/schokolade-zum-naschen

https://www.display.de/lila-osterhasen-in-neuen-designs

https://www.creodis.de/branchenloesungen/lebensmittel/

https://www.creodis.de/branchenloesungen/lebensmittel/

https://clearchox.com/de/shop/counter-display/

https://shoppymix.com/kleinpreisartikel/getraenke-food-suessigkeiten/food-haribo-230/250g-minis-52er-display-3fach

Appendix B: CE Legislation within the EU and Germany

According to Schally (2020), a successful transition from a LE to a CE demands assistance from various actors within the EU, such as the society, regional and local authorities, manufacturers as well as non-governmental organizations. So far, the focus was on eliminating and improving the consequences for economic development than on the fundamental problem of exceeding the Earth's carrying capacity (ibid.). The EU aims to leave the current LE towards a CE by passing legislative regulations shown in *Figure 12.*

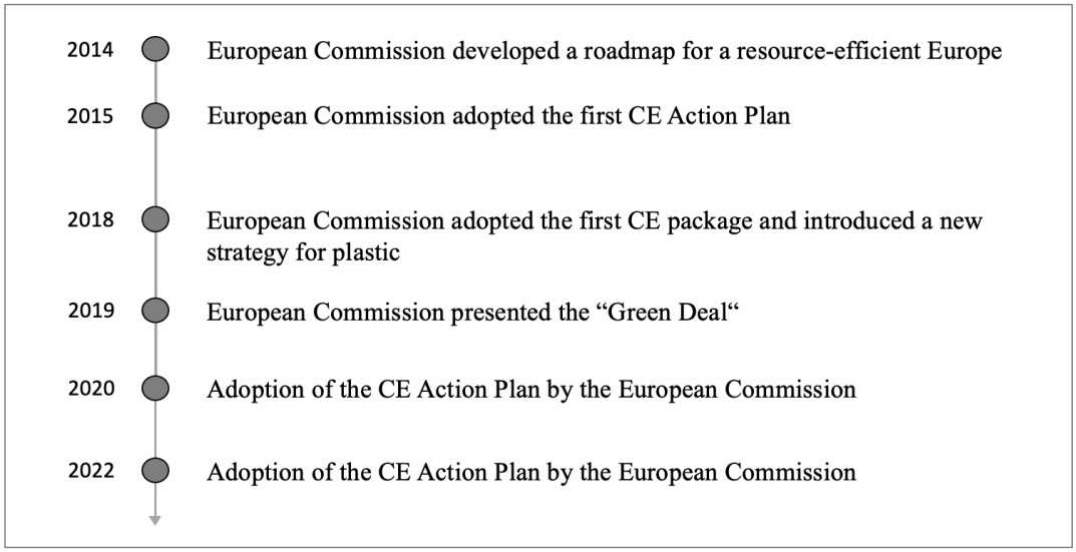


Figure 13: *Legislative Framework Implementation Timeline. Own Illustration*

In 2014, the European Commission (n.d. a) developed a roadmap for a resource-efficient Europe to solve the problem of exceeding the Earth's carrying capacity. Thus, the term CE was deliberately chosen by legislators to describe an economic form in which materials remain in the economic system for as long as possible in an sustainable manner. In 2015, the European Commission's action plan was activated serving as a starting point for reversing from a resource-intensive LE model to a CE (ibid.), by revising waste legislation in the EU, as well as measures to improve the entire life cycle of materials/products. Therefore, the CE is part of a more resource-efficient, sustainable way of life, encouraging the implementation of the UN's agenda 2030 for sustainable development and respecting planetary boundaries (Schally, 2018). To strenghten the process, the European Commission adopted the CE package in 2018. These include a plastic strategy aiming to change the way plastic products and packaging are designed, manufactured, used and recycled in the EU (European Commission, n.d. a). In 2019, the European Commission presented the "Green Deal" aiming to actively contribute to the United Nations' 2030 Agenda and its goal of sustainable development (being climate neutral in 2050 by creating a greener, pollution-free Europe and consequently move toward a CE) (European Commission, n.d. b; 2020). Therefore,

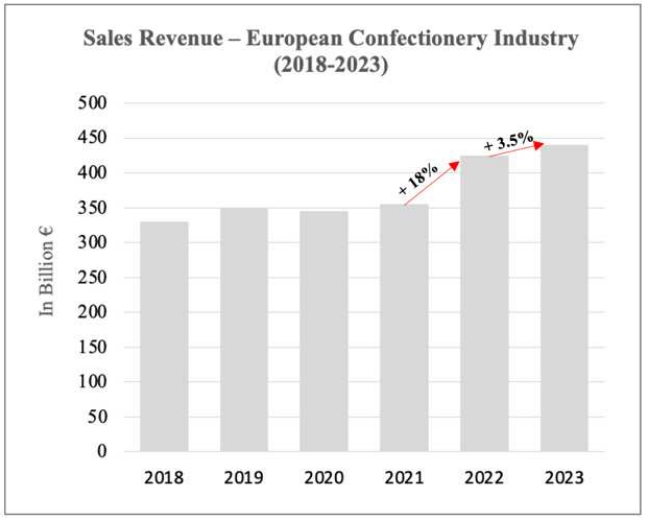
products must be designed for recyclability without using hazardous substances, and new business models shall be taken into account. In addition, the adaption of logistic systems for recycling should be promoted (EEA, 2017). In particular, the action plan announces regulations for sustainable products and production processes to support circularity for all products, meaning that a product is created with its own end-of-life taken into account (Nicolaus, 2021).

In 2020, the European Commission adopted a new CE plan paving the way for a cleaner and more competitive Europe. The adoption was one of the key elements of the "Green Deal" helping to achieve the announced climate neutrality target in 2050 (European Commission, n.d. c). Centralizing on how products are developed, how to promote CE processes and how to encourage sustainable consumption. In addition, the implementation strives to ensure that waste is avoided and that the resources used remain in the EU economy for as long as possible. In 2022, the European Commission initiated a decisive step towards accelerating the transition to a CE by proposing the promotion of sustainable products and the empowerment of consumers to act in an sustainable way. In addition, new EU-wide regulations for packaging were indtroduced, aiming to significantly reduce packaging waste and improve the design of packaging through measures such as clear labeling for reuse and recycling. The focus should also be on bio-based, biodegradable and compostable plastics (European Parliament, 2023).

Prior to the EU, Germany already anchored the "Kreislaufwirtschaftsgesetz" (KrWG) in 2012, in which the relevance of a circular product design was already explicitly stated. The law is intended to "ensure the conservation of natural resources [...] and the protection of people and the environment in the generation and management of waste" (KrWG, 2012). According to the KrWG (2012, §6) waste should be dealt within the following order: (1) Prevention: The avoidance of packaging waste is set. The goal is to produce as little waste as possible. (2) The preparation for re-use follows. This stage suggests producing waste should be processed in a way that it is prepared for further steps, such as recycling. (3) The next steps are recycling and (4) recovery. (5) The last stage is disposal. In this case, non-recyclable and toxic waste is deposited in special landfills. In science the question arises, how the entire life cycle of a package can be traced from production to disposal focusing on sustainability. Life-cycle assessments have proven to be useful for comprehensive life cycle analysis.

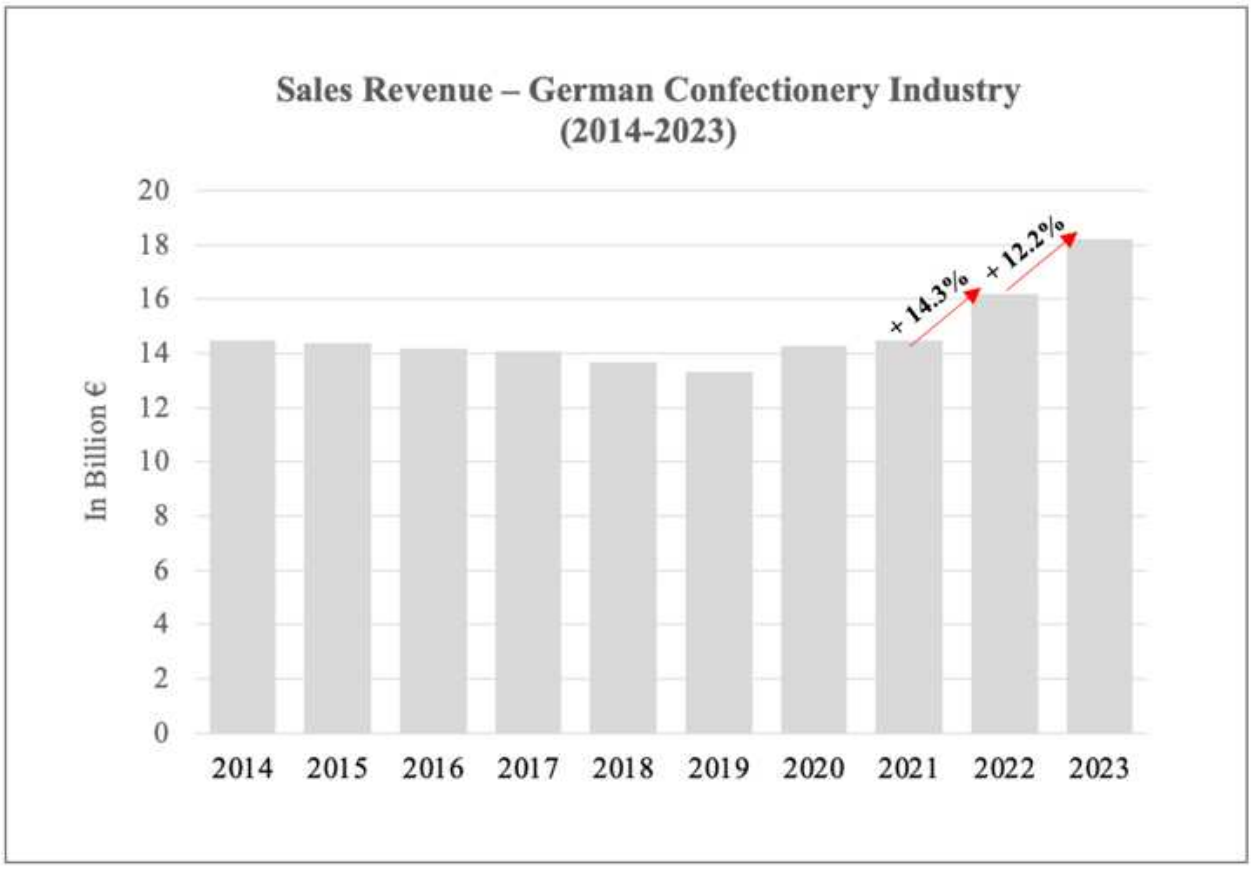
Overall, a transition to a CE, an economy with controlled resource consumption as well as fully recyclable materials, not only result in ecological benefits, but also strengthen the competitiveness of the European economy. After a successful transition, companies will be unaffected by resource shortages and fluctuations in the price of raw materials enabling them to produce more effectively (MacArthur, 2013).

Appendix C: German Confectionery Landscape



Source: Statista. (2023). Confectionery and Snacks in Europe. Retrieved on 15/02/2024 from: https://de.statista.com/outlook/cmo/lebensmittel/suesswaren-snacks/europa#umsatz

Source: Bundesverband der dt. Süßwarenindustrie, Statistisches Bundesamt (2023)



Source: Ahrens, S. (2024a). Süßwarenmarkt Deutschland: Konsum und Verbraucherverhalten. Statista. Retrieved 15/02/2024 from: https://de.statista.com/themen/4309/suesswarenmarkt-deutschland/#topicOverview

Appendix D: In-depth Interview Guide

Introduction

Hello [x], first of all, thank you for taking the time and agreeing to talk to me today about my master's thesis at Católica Lisbon School of Business and Economics. I am Niklas and I am currently researching Generation Z's perception of circular/sustainable confectionery POS displays in Germany. Please keep in mind, there are no right or wrong answers, I am only interested in your personal and honest opinion. In this context, I would like to assure you that all information you provide will be treated confidentially and will only be used for scientific research purposes. Your identity will remain anonymous throughout the study's results. The interview will last approximately 20 minutes.

Before we begin, is there anything else you would like to know about the study and/or today's interview?

Part 1: Clarification of the Research Topic

Q1: Have you heard about the concept of circular economy?

Definition: The concept of the circular economy aims to reduce waste to a minimum and keep raw materials in the associated value chain. Materials and products are reused, repaired and recycled for as long as possible.

Q2: Do you know what a POS display is?

Definition: A POS display is a special form of sales promotion that aims to generate impulse purchases from shoppers. Products are displayed and promoted in a supermarket on a so-called display, using an eye-catching design or a special display shape for increased attention. Here is an example.

Part 2: General Opinion towards (circular/ eco-designed) Confectionery POS displays

Q1: Do you purchase confectionery from the shelf or from POS displays?
Q2: What do you think about confectionery POS displays?
Q2: What is your point of view towards circular/ eco-designed (confectionery) POS displays?
Q3: Do you have any experiences with (circular/ eco-designed) (confectionery) POS displays?

Part 3: Influencing Stimuli (S) of Perceived Sustainability (O)

Q1: What factors do you consider when evaluating a POS display's environmental-friendliness?

Q2: *POS Display attributes (only ask if it has not been mentioned in Part 3 Q1):*

Q2a: *Material used:*

- Do you care about the materials used to build a confectionery POS display?
- Does the material affect your evaluation of a POS display's environmental-friendliness?

Q2b: *Color used:*

- Do you care about the color(s) of a confectionery POS display?
- Does the color affect your evaluation of a POS display's environmental-friendliness?
- Which color(s) do you associate with sustainability?

Q2c: *Information about Sustainability/CE Labels:*

- Do you care about sustainability information/CE labels on the confectionery POS display?
- Do you actively search for information about the environmental impact of POS displays?
- Do you perceive items to be more sustainable if they contain sustainability labels?

Q3: *Environmental Concern*:

- Are you concerned about the environment?
- Do you see a duty in yourself as a consumer to protect the environment?
- Do you believe that your environmental concern affects your perception confectionery POS display with regards to their sustainability?

Q4: *Confectionery Manufacturer's Environmental Record:*

- Are you interested in manufacturers who have a good environmental record?
- Do you see a duty on confectionery manufacturers to protect the environment?
- Does the confectionery manufacturer's environmental record affect your perception of confectionery POS display with regards to its sustainability?

Part 4: Influence of Perceived Sustainability (O) on Purchase Intention and WTP (R)

Q1: How does the before mentioned perceived sustainability (e.g., material, color, environmental record) influence your decision to purchase (or not to purchase) confectionery from a POS display?

- Do you believe that your perceived sustainability affects your purchase intention of confectionery promoted in a POS display?
- Have you switched brands due to perceived sustainability?
- If you have to choose between two equivalent brands, would you purchase the one which you perceive as more sustainable?
- Do you make extra effort to purchase products from brands that have a lower environmental impact?

Q2: How does the before mentioned perceived sustainability (e.g., material, color, environmental record) influence your WTP of confectionery from a POS display?

- Would you be willing-to-pay more for a confectionery product from an eco-designed POS display if you perceive the display as sustainable?

Conclusion

Before we finish our interview, would you like to add anything about your views or experiences with confectionery POS displays? Or do you have any further questions?

Thank you for sharing your thoughts and experiences with me today. Your input is really valuable to my research. I really appreciated the time you spent talking to me today. Thank you!

Appendix E: Summary – In-depth Interviews

Interview 1: Mark, 22-year-old male, Bachelor student with focus on resource-efficiency management

Mark knows the concept of the CE, and is also aware of POS displays. Mark buys confectionery by habit and knows where it is located on the shelf. However, he also stated that POS displays definitely attract his attention and influence his purchase decision. He usually goes shopping without a shopping list and then finds it very convenient to pick products from POS displays. In general, he has not yet thought about what happens to POS displays when they are empty. However, during the interview, he indicated more and more that it is important to think more sustainably here too, even if he does not pay attention to whether or not confectionery is promoted in a sustainable POS display when he buys it. This means that he does not pay attention to the materials used, the resource efficiency of the design and information about the environmental impact of the display. He believes that a permanent display solution is the most environmentally-friendly one in the long-run. Mark associates green, brown, and earth tones with sustainability and is interested in sustainability labels which offer a quick and useful insight into environmental impact, but too many labels exist. He is concerned about the environment. As a result of this interview, from now on, he will also take a closer look at POS displays. In general, the environmental footprint of manufacturers is important to him, and he also believes that manufacturers have a responsibility to protect the environment, and a good environmental footprint has a positive impact on his perception of their products. He is more inclined to buy from a brand that prioritizes environmental friendliness and has switched brands as a result. He is also willing-to-pay a few cents more for confectionery if the company acts more sustainable in return.

Interview 2: Nicole, 26-year-old female, Master student with focus on corporate communication

Nicole has heard of the circular economy before, but is not able to describe it precisely. She is familiar with POS displays as she often buys confectionery from them because she doesn't have confectionery on her shopping list and doesn't usually take it out of the shelf. In general, she attaches importance to sustainability at the POS and also to buying sustainable products, including packaging. However, she has not yet paid attention to the environmental impact of POS displays. If she had to look at the environmental friendliness of a POS display, she would look at the materials used, visible certifications or labels and the overall design in terms of efficiency and minimizing waste. Natural muted colors signal sustainability for her.

She has a medium environmental concern and believes that alongside consumer, also companies play an important role in supporting sustainable practices. Sustainability is an important purchase criteria for her, but price is also very important for her at the moment due to inflation. In general,

she would pay a premium for confectionery if it could be used to create eco-friendly POS displays. At the end of the interview, Nicole mentioned that it would be very helpful if a mock-up/ exhibit of a (circular-designed) POS display were shown to her.

Interview 3: Marlene, 19-year-old female, work and travel year in Australia

Marlene has not yet heard of the concept of the circular economy, but knows what POS displays are. She likes POS displays, which is why she often buys confectionery from them. The sustainability of POS displays is not important to her, she thinks that other areas need to be addressed first (e.g. plastic packaging). If she had to assess the sustainability of a POS display, she would check the material, the printing, and the adhesive in order to be able to classify the environmental-friendliness. So far, she has not paid attention to information about sustainability labels. Marlene associates green and beige with sustainability. She has a weak environmental concern but is aware that everyone needs to do more for sustainability. Nonetheless, it is often not her priority. For her, sustainability is not an important purchasing criterion for confectionery, but price and taste, which is why she would not pay a premium.

Interview 4: Paul, 20-year-old male, apprenticeship in the fashion industry

Paul has never heard of the concept of the circular economy, but knows what POS displays are because of his job. He likes POS displays and knows their advantages in terms of possible sales increases. However, until now, he has not been interested in the environmental impact of a POS display because he has never thought about their impact. If he has to evaluate a POS displays environmental-friendliness, the material used is a decisive criterion for him. Paul pays attention to information about sustainability, but more in terms of ingredients, as he follows a vegetarian diet. For him, the color green stands for sustainability. He stated that during the last years his environmental awareness and concern increase as he is now aware that he has a duty to act more sustainably. However, during his apprenticeship, he has a low purchasing power and opts for products that are rather cheaper than sustainable. Therefore, he would not pay a premium at the moment.

Interview 5: Micha, 27-year-old male, Sustainability Manager

Micha is familiar with the concept of the circular economy because he is confronted with the topic almost every day as a sustainability manager. He is aware of POS displays, but has not yet thought about their environmental impact. He noted that an example illustration of a circular-designed POS display would be helpful. In his household, his wife is responsible for grocery shopping, which is why he rarely goes shopping (for confectionery). When he does grocery shopping, it is usually for a small amount of items without a shopping list. Nonetheless, Micha

has bought confectionery from attention-grabbing POS displays without thinking about their impact on the environment. In general, sustainability is very important to him, which is why he decided to study and work in this subject. Moreover, it is important to him to consume products that are sustainable, and he also prefers products from companies that do a lot for the environment. He is enthusiastic to find out about companies' commitment to the environment and their actual practices in place. Micha associates green and earth tones with sustainability and is interested in sustainability labels that help him to understand the environmental impact of the product/company. For Micha, consumers and companies have a great duty to do more for sustainability, as he is concerned that more natural disasters will occur. Because of this, Micha is also willing-to-pay a premium for candy if the company does more to improve their environmental footprint.

Interview 6: Nico, 21-year-old male, Bachelor student with focus on logistics, Working student in a supermarket

Nico is not familiar with the concept of the circular economy, but deals with POS displays on a daily basis. He works in the supermarket and regularly buys confectionery, especially from POS displays. Sustainability is important to him, especially when it comes to travelling, but also in the context of food waste. Nico stated that he discussed with the store management that something had to be changed with the POS displays a few weeks ago. He was shocked when he disposed of three empty POS displays in the paper press in one day, without knowing whether this was even correct due to the printing and adhesive. He sees the use of sustainability labels positively and likes to find out about companies' commitment to the environment. Nico associates the colors green and beige with sustainability. The packaging material and printed sustainability labels can influence his purchasing decisions. In general, Nico believes that companies have a duty to do more for sustainability and to educate consumers. Nico is willing-to-pay a small premium for confectionery if the company does more towards sustainability.

Interview 7: Johanna, 28-year-old female, full time politician

Johanna is familiar with the concept of the circular economy and also with POS displays. She buys confectionery mainly out of habit directly from the shelf, but sometimes also from appealing POS displays. Due to her job in politics, the topic of sustainability/circular economy is very prominent in her daily life. Johanna has not yet thought about more sustainable options for POS displays, but recognizes that the FMCG industry in particular has a lot of catching up to do in terms of more environmentally-friendly practices. For her, the material of a POS display is the decisive criterion for evaluating it in terms of sustainability. However, in her opinion, the logistics behind should also be considered. Johanna associates sustainability with the colors green or natural brown. She is a supporter of sustainability labels, but feels that they need to be

standardized as there are too many. Her environmental concern and awareness shape her purchasing behavior, as she sees it as her personal duty to choose environmentally-friendly products or products from firms that act sustainably. However, she also expects manufacturers to take their environmental responsibility seriously, as a good environmental balance has a positive effect on her perception of a brand's products. Johanna is also willing-to-pay a premium for products promoted in an eco-designed POS display, as she associates them with greater sustainability.

Interview 8: Adrian, 24-year-old male, Self-employed social media marketing manager

Adrian is aware of the concept of the circular economy without having any detailed knowledge of it. On the opposite, he is much more familiar with POS displays. He usually shops once a week at the supermarket for himself and his girlfriend, carrying a shopping list with him. Confectionery is not on his shopping list, because he likes to be inspired as well as to purchase (new) confectionery that is promoted in POS displays. So far, he has not yet thought about the environmental impact of POS displays. However, it is important to him to consume products that are not very harmful to the environment. In addition, he prefers products from companies with a strong environmental effort, which is why he informs himself about the environmental commitment of companies. Adrian associates the colors green, brown, and beige with sustainability. He uses sustainability labels to understand the environmental impact of the product/company, but is sometimes overwhelmed by the number of different labels. Moreover, he believes that consumers and companies have a duty to change their behavior towards more sustainable actions. That is why he would pay more for confectionery if he knew that the company is doing more for the environment in return.

Appendix F: Quantitative Questionnaire

Start of Block: Introduction

Dear Participant,

thank you for assisting me with my master's thesis on the topic of **Generation Z's perception of circular/eco-designed confectionery POS displays**.
The following survey focuses exclusively on your **personal opinion**, meaning there are **no right or wrong answers**. Please always respond honestly and based on your personal assessment. All information will remain **anonymous**! Completing the questionnaire will take approximately **5 minutes** ⏱.
If you would like to complete the survey in German, you may change the language settings in the top right corner. DE
Thank you in advance for your participation and enjoy the survey 😊.
For questions or comments, I am available at the following email address: s-nschuppler@ucp.pt ✉.

Niklas Schuppler
Católica Lisbon School of Business and Economics
International Master in Management with Specialization in Marketing

End of Block: Introduction

Start of Block: Age

Question 1: How **old** are you?

▼ 17 years-old or younger (1) ... 30 years-old or older (14)

End of Block: Age

Start of Block: End of Survey criteria not met)

Display This Question:

If How old are you? = 17 years-old or younger

Or How old are you? = 30 years-old or older

End of Survey Thank you for your interest in participation in my survey! It appears that **your** current **profile does not meet** the **specific criteria** I am looking for in this study. I greatly appreciate your willingness to contribute and want to assure you that your time and effort are highly valued.

End of Block: End of Survey criteria not met)

Start of Block: Nationality

Question 2: What is your **nationality**?

- ○ German (1)
- ○ Other (2)

End of Block: Nationality

Start of Block: End of Survey criteria not met)

Display This Question:

If What is your nationality? = Other

End of Survey Thank you for your interest in participation in my survey! It appears that **your** current **profile does not meet** the **specific criteria** I am looking for in this study. I greatly appreciate your willingness to contribute and want to assure you that your time and effort are highly valued.

End of Block: End of Survey criteria not met)

Start of Block: Circular Economy Question

Question 3: Do you know the concept of a **circular economy**?

- ○ No (1)
- ○ Yes (2)

Question 4: Do you know **POS displays**?

- ○ No (1)
- ○ Yes (2)

End of Block: Circular Economy Question

Start of Block: Term Definition

Definition: **To ensure that every participant has the same basic understanding of both terms, they are defined in advance.**

Circular Economy: The concept of the circular economy aims to reduce waste to a minimum and keep raw materials in the associated value chain. Materials and products are reused, repaired and recycled for as long as possible.

POS Display: A POS display is a special form of sales promotion that aims to generate impulse purchases from shoppers. Products are displayed and promoted in a supermarket on a so-called display, using an eye-catching design or a special display shape for increased attention.
This is an example:

End of Block: Term Definition

Start of Block: General Questions POS Marketing

Question 5: The following section consists of questions regarding POS promotions.

	Completely disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither disagree nor agree (4)	Somewhat agree (5)	Agree (6)	Completely Agree (7)
Q5.1: I pay attention to POS promotions (e.g. discounts) while grocery shopping.	○	○	○	○	○	○	○
Q5.2: I actively search for POS promotions (e.g. discounts) while grocery shopping.	○	○	○	○	○	○	○
Q5.3: I pay attention POS displays while grocery shopping.	○	○	○	○	○	○	○
Q5.4: I actively search for POS displays while grocery shopping.	○	○	○	○	○	○	○
Q5.5: I think about the environmental-friendliness of POS displays	○	○	○	○	○	○	○
Q5.6: Current POS displays are sustainable.	○	○	○	○	○	○	○
Q5.7: POS displays should be sustainable.	○	○	○	○	○	○	○

End of Block: General Questions POS Marketing

Start of Block: Color Association

Question 6: Which **color comes to your mind** when thinking about **sustainability**?

Open Text: _____

End of Block: Color Association

Start of Block: POS Display Attributes – General Design

The following illustration is an example of a **circular-designed confectionery POS display**. Please take a detailed look, as you will be asked several questions later on.

Question 7: Attributes To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q7.1: I like the POS display.	○	○	○	○	○	○	○
Q7.2: The POS display is appealing.	○	○	○	○	○	○	○
Q7.3: The POS display is attractive.	○	○	○	○	○	○	○

End of Block: POS Display Attributes

Start of Block: POS Display Attributes

The following illustration is an example of a **circular-designed confectionery POS display.** Please take a detailed look, as you will be asked several questions later on. *[Picture from Q7]*

Question 8: Material To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q8.1: I recognize the material used.	○	○	○	○	○	○	○
Q8.2: I know the material used.	○	○	○	○	○	○	○
Q8.3: I like the material used.	○	○	○	○	○	○	○

End of Block: POS Display Attributes

Start of Block: POS Display Attributes

The following illustration is an example of a **circular-designed confectionery POS display**. Please take a detailed look, as you will be asked several questions later on. *[Picture from Q7]*

Question 9: Color To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q9.1: I like the **color** of the POS display.	○	○	○	○	○	○	○
Q9.2: The **color** of the POS display is appealing.	○	○	○	○	○	○	○
Q9.3: The **color** of the POS display is attractive.	○	○	○	○	○	○	○

End of Block: POS Display Attributes

Start of Block: POS Display Attributes

The following illustration is an example of a **circular-designed confectionery POS display**. Please take a detailed look, as you will be asked several questions later on. *[Picture from Q7]*

Question 10: Information To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q10.1: The POS display provides relevant info.	○	○	○	○	○	○	○
Q10.2: The POS display illustrates the benefits of the materials used.	○	○	○	○	○	○	○
Q10.3: The POS display believable.	○	○	○	○	○	○	○

End of Block: POS Display Attributes

Start of Block: Confectionery Manufacturer's Environmental Record

The following illustration is an example of a **circular-designed confectionery POS display**. Please take a detailed look, as you will be asked several questions later on. *[Picture from Q7]*

Question 11: To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q11.1: Confectionery manufacturer's environmental record is important to me.	○	○	○	○	○	○	○
Q11.2: I am able to recognize confection. manufacturer with a stronger environmental record.	○	○	○	○	○	○	○
Q11.3: I actively search for a confectionery manufacturer's environmental record.	○	○	○	○	○	○	○
Q11.4: A confectionery manufacturer which has practices in place to reduce their environmental impact, corresponds to how I think as a person.	○	○	○	○	○	○	○
Q11.5: I see a duty on confectionery manufacturers to protect the environment.	○	○	○	○	○	○	○

End of Block: Confectionery Manufacturer's Environmental Record

Start of Block: Consumers Environmental Concern

The following illustration is an example of a **circular-designed confectionery POS display**. Please take a detailed look, as you will be asked several questions later on. *[Picture from Q7]*

Question 12: To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q12.1: Human beings, when they interfere with nature, often cause disastrous consequences.	○	○	○	○	○	○	○
Q12.2: Human beings must live in harmony with nature to survive.	○	○	○	○	○	○	○
Q12.3: Humanity is abusing the environment.	○	○	○	○	○	○	○

Q12.4: I am concerned about the environment.	○	○	○	○	○	○	○
Q12.5: I see a duty in myself as a consumer to protect the environment.	○	○	○	○	○	○	○
Q12.6: This is an attention question - Please select "Agree"	○	○	○	○	○	○	○

End of Block: Consumers Environmental Concern

Start of Block: Perceived Sustainability

The following illustration is an example of a **circular-designed confectionery POS display**. Please take a detailed look, as you will be asked several questions later on. *[Picture from Q7]*

Question 13: To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q13.1: This POS display is more sustainable than common POS displays.	○	○	○	○	○	○	○
Q13.2: This POS display is designed in a way that minimizes its environmental impact.	○	○	○	○	○	○	○
Q13.3: This POS display has been designed to be easily recyclable/reusable at the end of its life.	○	○	○	○	○	○	○

End of Block: Perceived Sustainability

Start of Block: Purchase Intention

Question 14: To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q14.1: I would be willing to buy confectionery in a circular-designed POS display.	○	○	○	○	○	○	○
Q14.2: I intend to purchase confectionery placed in circular-designed POS display, if it is available.	○	○	○	○	○	○	○
Q14.3: I would exert a great deal of effort to purchase confectionery only from a circular-designed POS display.	○	○	○	○	○	○	○

End of Block: Purchase Intention

Start of Block: Willingness-to-Pay

Question 15: To what extent do you **agree** with the **following statements**?

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Q15.1: I am willing-to-pay more for confectionery promoted in a circular-designed POS display.	○	○	○	○	○	○	○

Page Break

Question 16: If your favorite confectionery usually placed in a common single-use POS display costs 2.00 Euros is now only promoted in a circular-designed POS display, how would you rate the following price points [in €]?

	0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10
Q16.1: At what price do you think the product is too expensive?	
Q16.2: At what price do you think the product is a bargain?	
Q16.3: At what price do you think the product begins to seem expensive, but you would eventually buy it?	
Q16.4: At what price do you think the product is priced so low that it makes you question its quality?	

End of Block: Willingness-to-Pay

Start of Block: Demographics 2

Question 17: What is your **gender**?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Question 18: What is the **highest level of education** you have **completed**?

- ○ None (so far) (1)
- ○ Realschul Diploma (2)
- ○ High School Diploma (3)
- ○ Bachelor Degree (4)
- ○ Master Degree (5)
- ○ Doctorate (6)
- ○ Other (7)

Question 19: What is your **current occupation**?

- ○ High School Student (1)
- ○ University Student (2)
- ○ Apprentice (3)
- ○ Employed (4)
- ○ Self-employed (5)
- ○ Other (6)

Question 20: What is your **yearly net income**?

- ○ Below 10.000 Euros (1)
- ○ 10.001 - 20.000 Euros (2)
- ○ 20.001 - 50.000 Euros (3)
- ○ 50.001 - 100.000 Euros (4)
- ○ Over 100.001 Euros (5)

End of Block: Demographics 2

Start of Block: Pictures Displayed

Question 21: Were the **pictures displayed correctly**?

- ○ No (1)
- ○ Yes (2)

End of Block: Pictures Displayed

Appendix G: Construct Overview & Measurement

Construct	Scale	Items	Items origin
CE POSD General Design	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ I like the display. ▪ The display is appealing. ▪ The display is attractive.	Burner (1998, 2009)
CE POSD Material	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ I recognize the material used ▪ I know the material used ▪ I like the material used	
CE POSD Color	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ I like the color of the display. ▪ The color of the display is appealing. ▪ The color of the display is attractive.	
CE POSD Info	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ The display provides relevant information. ▪ The display illustrates the benefits of the materials used ▪ The display believable.	
Confectionery Manufacturer's Environmental Record [CMER]	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ Confectionery manufacturer's environmental record is important to me. ▪ I am able to recognize the confectionery manufacturer with a stronger environmental record. ▪ I actively search for a confectionery manufacturer's environmental record. ▪ A confectionery manufacturer which has practices in place to reduce their environmental impact, corresponds to how I think as a person. ▪ I see a duty on confectionery manufacturers to protect the environment.	Based on Prakash & Pathak (2016); Magnier & Schoormans (2017)
Consumers Environmental Concern [EC]	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ Human beings, when they interfere with nature, often cause disastrous consequences. ▪ Human beings must live in harmony with nature to survive. ▪ Humanity is abusing the environment. ▪ I am concerned about the environment. ▪ I see a duty in myself as a consumer to protect the environment.	Prakash & Pathak (2016); Magnier & Schoormans (2017); Yadav & Pathak (2016)
Perceived Sustainability [PS]	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ This POS display is more sustainable than common POS displays. ▪ This POS display is designed in a way that minimizes its environmental impact. ▪ This POS display is designed to be easily recyclable/reusable at the end of its life.	Based on Haws et al. (2014); Gershoff and Frels (2015)
Purchase intention [PI]	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ I would be willing to buy confectionery in circular-designed POS displays. ▪ I intend to purchase confectionery placed in circular-designed POS display, if it is available.	Dodds et al. (1991); Nystrand & Olsen (2020); White et al. (2012)

		▪ I would exert a great deal of effort to purchase confectionery only from a circular-designed POS display.	
Willingness-to-Pay 1 [WTP]	7-point Likert-scale: 1 = completely disagree 7 = completely agree	▪ I am willing-to-pay more for confectionery promoted in a circular/eco-designed POS display.	
Willingness-to-Pay 2 [WTP]	Open Text	▪ At what price do you think the product is too expensive? ▪ At what price do you think the product is a bargain? ▪ At what price do you think the product begins to seem expensive, but you would eventually buy it? ▪ At what price do you think the product is priced so low that it makes you question its quality?	van Westendorp (1976)

Appendix H: Discriminant Validity

Discriminant validity is proven as the construct's square root of AVE > correlation values (Chin et al., 1997). The following table illustrates bivariate correlations, average variances extracted (AVE), composite reliabilities (CR).

	CE POSD General	CE POSD Material	CE POSD Color	CE POSD Info	**CMER**	**EC**	**PS**	**PI**	**AVE**	**CR**
CE POSD General	**0.943**								0.889	0.960
CE POSD Material	0.272**	**0.744**							0.554	0.787
CE POSD Color	0.726**	0.203**	**0.966**						0.933	0.977
CE POSD Info	0.205**	0.306**	0.189**	**0.841**					0.708	0.879
CMER	0.283**	0.118	0.264**	0.218**	**0.775**				0.601	0.882
EC	0.032	0.147*	-0.007	0.283**	0.490**	**0.785**			0.617	0.889
PS	-0.217**	0.099	-0.194**	0.309**	0.097	0.376**	**0.812**		0.659	0.853
PI	0.233**	0.215**	0.233**	0.236**	0.527**	0.487**	0.096	**0.813**	0.661	0.854

Notes: Significance at: *p<0.05 and **p<0.01. The bold diagonal values are the square root of AVE.

Appendix I: Hypothesis Testing H_1 – H_3

Original Research Model (H_{1-3})

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.520	0.270	0.251	0.8655	2.026
DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC					

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	63.469	6	10.578	14.122	< 0.001
2	171.531	229	0.749		
3	235.000	235			
DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC					

Multiple Linear Regression

Multiple Linear Regression: Stimulus (S) → Organism (O)			
	β	t	p_2 (Sig.)
CE POSD General Design	0.232	2.7444	0.007
CE POSD Material	0.051	0.838	0.403
CE POSD Color	-0.076	-0.918	0.360
CE POSD Info	0.274	4.415	< 0.001
CMER	-0.037	-0.545	0.586
EC	0.316	4.657	< 0.001
DV: PS // IVs: CE POSD [General Design, Material, Color, Info], CMER, EC			

Model Extension

Multigroup Analysis: Knowledge about CE vs. No Knowledge about CE

Group: Knowledge about CE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.605	0.366	0.325	0.7934
DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC				

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	33.132	6	5.522	8.772	< 0.001

2	57.287	91	0.630
3	90.419	97	

DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC

Multiple Linear Regression

Multiple Linear Regression: Stimulus (S) → Organism (O)			
	β	t	p_2 (Sig.)
CE POSD General Design	0.486	3.527	< 0.001
CE POSD Material	-0.012	-0.133	0.895
CE POSD Color	0.143	1.040	0.301
CE POSD Info	0.345	3.801	< 0.001
CMER	-0.055	-0.517	0.606
EC	0.398	4.086	< 0.001

DV: PS // IVs: CE POSD [General, Material, Color, Info], CMER, EC, 15 Interactions

Group: No Knowledge about CE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.501	0.251	0.216	0.9094

DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	36.231	6	6.039	7.302	< 0.001
2	108.327	131	0.827		
3	144.558	137			

DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC

Multiple Linear Regression

Multiple Linear Regression: Stimulus (S) → Organism (O)			
	β	t	p_2 (Sig.)
CE POSD General Design	0.137	1.268	0.207
CE POSD Material	0.100	1.187	0.237
CE POSD Color	-0.170	-1.599	0.112
CE POSD Info	0.245	2.905	0.004
CMER	-0.031	-0.339	0.735
EC	0.289	3.084	0.002

DV: PS // IVs: CE POSD [General, Material, Color, Info], CMER, EC, 15 Interactions

Introducing 2-way Interactions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.624	0.389	0.329	0.8190	2.043

DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	91.453	21	4.355	6.492	< 0.001
2	143.547	214	0.671		
3	235.000	235			

DV: PS // IV: CE POSD General, Material, Color, Info, CMER, EC

Multiple Linear Regression

Multiple Linear Regression: Stimulus (S) → Organism (O) including Interactions			
	β	t	p_2 (Sig.)
CE POSD General Design	0.222	2.574	**0.011**
CE POSD Material	0.035	0.577	0.565
CE POSD Color	-0.101	-1.048	0.296
CE POSD Info	0.304	4.670	**< 0.001**
CMER	0.004	0.055	0.956
EC	0.233	3.267	**< 0.001**
Int_CE POSD General_and_CE POSD Material	0.154	2.021	**0.045**
Int_CE POSD General_and_CE POSD Color	-0.036	-0.457	0.648
Int_CE POSD General_and_CE POSD Info	-0.239	-2.459	**0.015**
Int_CE POSD General_and_CMER	0.067	0.712	0.477
Int_CE POSD General_and_EC	-0.102	-0.996	0.320
Int_CE POSD Material_and_CE POSD Color	0.083	0.992	0.322
Int_CE POSD Material_and_CE POSD Info	-0.039	-0.615	0.539
Int_CE POSD Material_and_CMER	-0.084	-1.035	0.302
Int_CE POSD Material_and_EC	0.069	0.819	0.414
Int_CE POSD Color_and_CE POSD Info	0.237	2.404	**0.017**
Int_CE POSD Color_and_CER	0.157	1.723	0.086
Int_CE POSD Color_and_EC	-0.061	-0.619	0.536
Int_CE POSD Info_and_CMER	-0.017	-0.202	0.840
Int_CE POSD Info_and_EC	-0.096	-1.162	0.246
Int_CER_and_EC	0.003	0.390	0.969

DV: PS // IVs: CE POSD [General, Material, Color, Info], CMER, EC, 15 Interactions

Appendix J: Hypothesis Testing H_4 – H_5

Original Research Model

Simple Linear Regression: PS → PI (H_4)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.096	0.009	0.005	0.9975	2.111

DV: PI // IV: PS

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	2.149	21	2.149	2.159	0.143
2	232.851	234	0.995		
3	235.000	235			

DV: PI // IV: PS

Simple Linear Regression

Linear Regression: Organism (O) → Response (R)			
	β	t	p_2 (Sig.)
PS	0.096	1.469	0.143

DV: PI // IV: PS

Model Extension

Multigroup Analysis: Knowledge about CE vs. No Knowledge about CE

Group: Knowledge about CE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.189	0.036	0.029	0.9522

DV: PI // IV: PS

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	4.579	1	4.579	5.050	0.026
2	91.124	96	0.907		
3	105.256	97			

DV: PI // IV: PS

Simple Linear Regression

Linear Regression: Organism (O) → Response (R)			
	β	t	p_2 (Sig.)
PS	0.189	2.247	0.026
DV: PI // IV: PS			

Group: No Knowledge about CE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.036	0.001	-0.009	1.0464
DV: PI // IV: PS				

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	0.133	1	0.133	0.121	0.728
2	123.311	136	1.095		
3	127.890	137			
DV: PI // IV: PS					

Simple Linear Regression

Linear Regression: Organism (O) → Response (R)			
	β	t	p_2 (Sig.)
PS	-0.036	-0.348	0.728
DV: PI // IV: PS			

Simple Linear Regression: PS → WTP (H_5)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.072	0.005	0.001	1.576	1.957
DV: WTP // IV: PS					

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	3.061	21	3.061	1.233	0.268
2	580.939	234	2.483		
3	584.000	235			
DV: WTP // IV: PS					

Simple Linear Regression

Linear Regression: Organism (O) → Response (R)			
	β	t	p_2 (Sig.)
PS	0.072	1.110	0.268
DV: WTP // IV: PS			

Model Extension

Multigroup Analysis: Knowledge about CE vs. No Knowledge about CE

Group: Knowledge about CE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.185	0.034	0.027	1.521
DV: WTP // IV: PS				

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	1.908	1	1.908	0.723	0.030
2	243.367	96	2.313		
3	255.276	97			
DV: WTP // IV: PS					

Simple Linear Regression

Linear Regression: Organism (O) → Response (R)			
	β	t	p_2 (Sig.)
PS	0.185	2.199	0.030
DV: WTP // IV: PS			

Group: No Knowledge about CE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.086	0.007	-0.003	1.625
DV: WTP // IV: PS				

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	11.190	1	11.190	4.838	0.397
2	314.585	136	2.639		
3	325.775	137			

DV: WTP // IV: PS

Simple Linear Regression

Linear Regression: Organism (O) → Response (R)			
	β	t	p_2 (Sig.)
PS	-0.086	-0.850	0.397

DV: WTP // IV: PS