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# Anthropomorphism as a Differentiation Strategy for Standardized Reusable Glass Containers

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**Abstract:** The steadily increasing amount of waste requires new strategies for package waste reduction. One strategy is to switch from single-use plastic packaging to glass packaging; however, this strategy is only beneficial from an environmental perspective when complemented with a multi-use deposit refund system with standardized glass containers. This implies the loss of package shape as a differentiation criterion, which has been considered a highly relevant marketing instrument in the fast-moving consumer goods markets. Against this background, the current research investigates in an online experiment the suitability of anthropomorphized label designs on prompting purchase intentions in the context of reusable glass jars. The study further investigates the mediating roles of brand attitude and brand interest. Contrary to the postulated hypotheses, anthropomorphized labels negatively impact brand attitude, and the sequential mediation of anthropomorphism on brand interest and brand attitude on purchase intention was significant. Our findings reveal that anthropomorphized labels stimulate brand interest, which in turn positively affects purchase intention. The results emphasize the relevance of brand interest in package design and guides manufacturers, brand managers, and policymakers to effective differentiation strategies for standardized multi-use packages.

**Keywords:** waste reduction; deposit-refund systems; package design



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## 1. Introduction

The decades-long use of single-use plastic packaging for fast-moving consumer goods has dramatic consequences for our planet. While in 1950, just under 1.5 million tons of plastic were produced; today, it is almost 370 million tons worldwide [1]. Of the plastic produced in the roughly 70 years, about 9% has been recycled, 12% incinerated, and 79% landfilled or ended up in the environment. Every year, up to 12 million tons of plastic alone end up in our oceans and have led to the creation of the so-called Great Pacific Garbage Patch, an island of trash in the Pacific Ocean that is up to 1.6 million square kilometers in size [2]. In addition, the $CO_2$ emissions caused by the production of single-use plastic are another severe problem in the fight against climate change. Estimations of the $CO_2$ footprint of single-use plastic packaging conclude that it is two or even three times greater than that of glass packaging, but only if it is reused [3]. The production of glass containers such as bottles and jars generates comparatively more $CO_2$ emissions, but these decrease noticeably with each reuse, resulting in a better $CO_2$ footprint after a few cycles [4,5]. As Stahel [6] put it, 'Cleaning a glass bottle and using it again is faster and cheaper than recycling the glass or making a new bottle from minerals'. For this reason, glass has been widely recognized as the least waste-generating packaging for decades [7].

Governments all over the world aim at reducing the use of single-use plastic packaging and frequently encourage the establishment or expansion of systems of reusing packaging to strengthen the circular economy (amongst other measures such as increasing recycling rates [8]). Food and beverage producers increasingly join in this effort, not only to conform to the regulations but also to focus on improving their image when switching from single-use to multi-use packaging [9]. Deposit refund systems (DRS) [10] are schemes that have been found to lead to a particularly high number of rotations of reuse and thus are considerably better for the environment In the beverage market, DRS have proven particularly useful as they ensure that glass bottles for beer, milk, water, and carbonated drinks are returned for reuse. To guarantee high reuse rates, bottles are often used in a shared pool system, which requires standardized bottle formats [11]. In the context of food service cups, a recent report [12] suggests that 'switching from single-use consumption to multi-use consumption using a glass container would further cut the carbon footprint by 50 to 60 percent, while also reducing waste by extending the product's lifetime'.

While the benefits of employing DRS have been widely researched (see [13,14] for reviews), an important aspect that pertains equally to consumers and manufacturers has been neglected so far: Using standardized packaging, the packaging shape can no longer be used as a differentiator. As the shape is often an important part of the visual appearance, such as the hourglass shape of the Coca-Cola bottle [15], manufacturers need new ways to stand out from the competition on the shelf. Although ample research has been undertaken on different aspects of packaging design, little attention has been devoted to branding strategies in product categories with standardized containers. To fill this research gap, the overall objective of the current research is to explore how anthropomorphized labels (i.e., attribution of human-like characteristics or behaviors to products [16]) on standardized glass containers impact brand attitude and attract interest and purchase intention. In doing so, our research offers new insights into branding strategies for standardized packaging and sheds light on the underlying mechanism that explains consumers' responses to anthropomorphized labels and standardized glass containers. Findings yielded by an online experiment advance the extant literature in at least four ways. First, we advance the extant literature in the context of reuse systems by illuminating one important aspect that might lead to manufacturers' and retailers' hesitations related to the introduction of multiple-use DRS; we point to the relevance of package shape in marketing communications, which cannot be manipulated in the case of unified packaging. Second, we theoretically identify brand label anthropomorphism as a promising strategy for differentiating products with unified package designs. This notion was validated with data yielded by an online experiment. Third, we reveal a so far neglected underlying mechanism explaining the positive impact of anthropomorphism on purchase intention. Specifically, our findings highlight the relevance of brand interest in explaining the relationship between anthropomorphized labels and purchase intention. Fourth, we contribute to the debate on the impact of anthropomorphism on brand attitude and identify brand interest as an important determinant of the positive effect of anthropomorphized labels on purchase intention. Finally, we develop several practical and policy implications.

## 2. Theoretical Background

### *2.1. Reusable Packaging and Packaging Shape*

Protecting food from environmental influences is the primary function of food packaging. Food packaging can be made of various materials that differ significantly in terms of their environmental sustainability [17]. One central factor determining a material's sustainability is the ability to recycle or even better reuse it as research confirmed already two decades ago [18]. Package reuse is the second-best option right after the general avoidance of waste in the waste hierarchy (prevention, reuse, recycling, recovery, disposal) [19]. Likewise, theoretical models indicate that the DRS model is superior to alternative waste disposal policies in controlling pollution by waste [20]. Reusable packaging reduces the demand for raw materials and landfill waste [21], slows down material flows [13], and

hence addresses the problems of the overproduction and consumption of raw materials [22]. Especially in the fast-moving consumer goods (FMCG) market, reusable package systems have attracted considerable research interest due to the enormous negative impacts of disposable FMCG packaging on the environment. Sequential reuse models, in which a pool of standardized packaging is collectively owned and controlled by several companies, seem to be particularly suitable for FMCG products. Such a system requires a coordination mechanism for collecting, cleaning, and distributing reusable glass bottles or a governmental initiative [23] and—most notably—the participation of consumers in the system [13].

Mahmoudi and Parviziomran [21] note that the success of reusable package systems is highly dependent on consumers' cooperation. Despite the environmental benefits of reusable packaging, several consumer-related factors impede the implementation of reusable packaging systems. Consumers' acceptance is often hindered by the inconvenience associated with returning the packaging after use, the lack of (financial) incentives for doing so, and the missing understanding of its positive effects on the environment [24,25]. Accordingly, it is not surprising that throwing away and to a lesser extent recycling—with convenience (e.g., through high availability of bottle banks) playing an important role [26]—continue to be seen as the most popular ways to get rid of packaging materials, although increasing the prevalence of DRS could facilitate the transition to this system [27]. A recent study in the UK points to consumers' readiness for DRS, which aligns with the trend of green consumerism. In 2019, a survey among the British public found that 80% of the respondents were likely to use DRS schemes. Of those, 58% stated they were very likely to use it [28]. Another poll conducted in 2020 found that 84% of Austrians are in favor of expanding the existing deposit system for glass bottles [29]. Ten European countries currently operate legally regulated deposit refund systems, covering 26% of Europe's population. Due to strict European requirements regarding packaging waste recycling, other countries are also considering shifting toward deposit refund systems [30].

However, retailers face several operational challenges when implementing reusable packaging systems, such as the requirement for additional space for storage and dispensers, staff training, hygiene requirements, maintenance, and cleaning as well as structural hurdles, such as logistics, and—what is of particular relevance for the current research—the need to develop a new marketing and communication strategy [31]. Bocken et al. [22] note that the limitations in product design associated with the introduction of reusable packaging are one of the main reasons FMCG manufacturers keep using single-use packaging. Despite the interest in the barriers, drivers, and success factors of reuse models in the FMCG, the limited design aspects related to DRS has been neglected so far. This is highly relevant, however, as it could lead manufacturers to prevent DRS that use containers as a pool resource for several manufacturers even though scalability is the central parameter determining the success of the reuse system in terms of environmental sustainability [12]. The more manufacturers are using reusable packaging, the more consumers will be addressed; transport distances can be reduced and the investment in containers can be amortized quicker [22,32]. In other words, the standardization of package design across different brands is a key success factor for the introduction of DRS, but standardization can also be a major problem that makes manufacturers forgo participation in the DRS, as it leaves little room for manufacturers to differentiate themselves from competitors.

If reuse models force manufacturers to conform to a unified package shape, important design aspects which prompt impulse purchases at the point of sale might be missing, potentially causing a profit loss. In the context of product packaging, often trade-offs must be made. For instance, it has been noted that the different packaging functions, such as safety, result in a trade-off with the requirement for less and lighter packaging [33]. Less packaging further reduces advertising space, and eco-friendly packaging might decrease a brand's attractiveness [34]. Nevertheless, a recent study reveals that consumers value eco-friendly packaging as more important than the brand for products containing palm oil [35]. Although evaluating such trade-offs is complex, a study shows that the marketing aspect has the greatest influence on companies' packaging decisions and thus ultimately

tips the scales in their favor [36]. In order to be able to operate in an ecologically as well as economically sustainable manner, the importance of the design aspect must therefore not be underestimated [22]. In the following, we will highlight the importance of the packaging shape as an important marketing element.

Alongside the technical functions of a product's packaging (i.e., protection, facilitating distribution), the product packaging is a key tool for communicating a brand's image and product attributes [37,38]. A considerable number of purchase decisions are made at the point of sale, and product packaging has been identified as a major determinant of product choice [39], especially for low-involvement products [40]. The increasing number of products offered in supermarkets caused a proliferation of choice [41], hindering consumers from systematically evaluating all options available but rather relying on small cues when making purchase decisions [42]. In return, marketers have been using packaging materials, shapes, and colors to influence consumer purchasing decisions [40,43]. Several studies confirm the relevance of a product's shape to prompt consumers' interest and ultimately affect product choice. Package design is the first interaction consumers have with a brand [15], and it can influence consumers' willingness to pay [44] and their purchase decisions [45,46].

Package shape also impacts the expected liking of foods. In the context of milk desserts, round packages yielded significantly higher scores on expected liking compared with a square package. Respondents also had different associations with the two different package shapes: the round shape yielded word associations such as runny, creamy, and soft, while the square package was associated with low-calorie and thickness [45]. Package shapes representing a human body activate mental schemas and prompt aesthetic appeal, and consumers prefer shapes of gender-neutral product packages representing the female body to those reflecting the male body. However, for gender-specific products, consumers prefer package shapes congruent to their own gender-related ideal body shape [47]. Another study confirms the relevance of applying a human's body shape to package design: Across a series of studies, Chen et al. [48] reveal that tall and slender products prompt associations with high-end products, while short and wide packages are associated with a low brand status. The authors explain this effect by individuals' association of a human's body shape with socioeconomic status, i.e., people with a higher BMI are associated with a lower socioeconomic status. A food package representing a slim human body also prompts healthiness perceptions of foods [49,50], with this effect being pronounced for females and individuals with a high BMI [50]. The positive effect of package size on healthiness perception is validated by another study: taller packages prompt lower calorie estimates but more volume than wider packages [51]. At the point of sale, packages do not only differentiate products from their competitors but also attract attention. The latter is also positively correlated with volume estimation. Similarly, across a series of studies, researchers confirm that the container length impacts consumers' volume perception, leading to a lower number of purchased multi-unit packages [46]. Unusual containers attract more attention than usual ones, which positively impacts volume judgments [52]. Overall, the reviewed evidence on package shape highlights the relevance of package shape for marketing purposes. One package feature which has received considerable research attention is the humanization of the package shape [15,53–55]. This strategy is also used in the foods market, e.g., for Coca-Cola's female-body-shaped package [56]. Relating to this evidence, the next section elaborates on the underlying processes that explain why humans react positively to human-like characteristics of packages and how this strategy could be transferred to label design.

### *2.2. Personification and Packaging*

Communicating human-like characteristics of brands has become an important marketing communication strategy [53,54,57] and can be applied through various means, for example visual cues such as features resembling parts of a human body [58], verbal cues such as giving products human names [59], and brand personification [57,60]. Brand personification describes a tactic that aims to elicit human-like qualities for a specific brand,

with these human-like qualities becoming an essential part of the brand's image [53,55]. Developing a brand personality has been acknowledged as one important strategy for building strong brands [61]. Famous brand personification tactics are for example the M&M characters or the Michelin Man. Anthropomorphism represents the underlying mechanism that explains how individuals process and comprehend personified brands [57]. Anthropomorphism is usually evoked by unfamiliar objects activating knowledge about human beings, which in turn helps to interpret an object. This sense-making process is stimulated by relating the object to human-like states, such as cognition, emotion, and motivation [55]. Indeed, people often associate non-human objects with human-like characteristics [62]. This process prompts favorable consumer responses, such as more positive brand attitude [63–65]. The positive effect of anthropomorphism can be explained by increased processing fluency [57]. Typical brand attributes increase product identification [15] and, consequently, facilitate information processing. This effect is enhanced when the humanized body shape is congruent with the product attribute [56].

Increased processing fluency in turn results in more favorable evaluations [66]. Another explanation for the positive effect of anthropomorphism on consumer responses is expected emotional responses from others if the product is purchased by another person. Research reveals that an anthropomorphic package prompts parents' child-related thoughts and in turn, expected emotional responses from a child, which increases purchase intentions [67].

However, other scholars describe contradicting findings of no effect of anthropomorphism on brand attitudes [68,69]; some scholars even suggest that it can lead to negative effects on brand evaluations [70,71]. Hence, brand personification might not be suitable in all situations [57]. For instance, a recent article reports that a combination of contagious disease cues with anthropomorphic cues negatively affects product preference. In such a situation, anthropomorphic products represent a salient cue for interpersonal relationships that increases the risk of infection [72]. Anthropomorphic product cues can also be used to reduce undesirable consumer behavior. A study demonstrated that anthropomorphic stickers reduce meat-eating intentions [73].

In an effort to contribute to the debate on the positive effects of anthropomorphism on consumer responses, Velasco et al. [74] conducted a literature review based on 47 papers and concluded that consumers react more positively to anthropomorphic stimuli than non-anthropomorphic stimuli. In contrast to prior research on anthropomorphism in package design, we propose to use the label to follow an anthropomorphized packaging strategy. In support of this notion, prior research in the context of wine bottle design reveals that labels impact consumers' assessments of a brand's personality and their willingness to buy. Hence, product labels are an important marketing tool that can influence a consumer's response [75]. In support of this notion, research confirms the relevance of front-of-package and back-of-package labels in consumers' decision making, while various factors such as knowledge, credibility, or list of ingredients impact consumers' willingness to read food labels [76]. Using a comprehensive content analysis investigating 686 anthropomorphic packages of grocery products, Triantos et al. [54] reveal that graphic package elements with a bodily appearance represent a common strategy for prompting human-like associations. Labels are often used to communicate the meaning of a brand [77]. In addition to the properties of commodity and package shape, the label design has been acknowledged as a relevant factor for product differentiation [78]. Following these notions, we propose that an anthropomorphized label might present a promising strategy for standardized packages. Anthropomorphism in the context of packaging has been mainly researched with regard to package shape [45,47–50]; however, in the context of advertising, it has been confirmed that a graphical representation can prompt human-like associations with a brand as well [57,63]. Against this background, we suggest that

**H1.** *An anthropomorphized label design on standardized packaging positively affects brand attitude.*

Environmental psychologists acknowledge the relevance of interest in processing new stimuli [79]. Interest correlates negatively with familiarity, which makes brand interest a relevant construct in standardized package design. Likewise, keeping consumers' interest is a major challenge for mature brands [80]. The authors argue that a focus on strengthening brand attitude while ignoring the brand interest construct could result in negative consumer responses since consumers might experience feelings of boredom associated with a particular brand despite its positive evaluations [81]. Bored consumers tend to search for alternative brands to reduce boredom and to find stimulation. The relevance of stimulating brand interest is further emphasized in research reviewing practices that can prompt brand interest; however, the role of anthropomorphism has been neglected that far [82].

From an evolutionary perspective, Izard [83] describes interest as basic emotion and the most often experienced positive emotion. In branding literature, brand interest describes consumers' 'base level of approachability, inquisitiveness, openness, or curiosity an individual has about a brand' [80] (p. 73). In line with this reasoning, Renninger and Wozniak [84] identified interest as an important antecedent of attentional and memory measures among young children. Likewise, in a marketing context, attention is an important prerequisite for interest, as stipulated in the widely accepted Attention-Interest-Desire-Action framework [85]. Anthropomorphized brands attract attention [86] and thus stimulate interest. This notion is supported by research demonstrating that change and novelty have a direct positive influence on brand interest [80,87,88]. In general, there is consensus in extant literature that a package design that differs from competitor brands stimulates curiosity and brand interest [89,90]. Indeed, an anthropomorphic product design positively impacts consumers' willingness to recycle express packaging [91]. In line with this reasoning, we postulate that adding an anthropomorphized label to a standardized package is a new approach that likely results in heightened cognitive arousal [92] and raises attention and interest [93]. Prior research confirms that anthropomorphism increases information processing to make sense of the anthropomorphized object [60] and hence fosters interest in the brand. In support of these notions, an eye-tracking study reports that deviations from body schemas in advertising increase elaborations and fixations [94]. Hence, we propose that

**H2.** *An anthropomorphized label design on standardized packaging positively affects brand interest.*

Brand attitude is an important determinant of behavioral intentions [95]. For instance, relating to atypical package colors, Garaus and Halkias [93] reveal that a favorable brand attitude is associated with higher purchase intentions. Other research confirms that consumers' narrative engagement with brands on social media networks positively affects brand attitude, which subsequently increases favorable behavioral intentions in terms of a hotel's revisit intentions and recommendations [96]. Brand attitude has also been found to mediate the impact of food labeling on purchase intention [95] and has been identified as an important predictor of organic food purchase intention [97].

In addition to brand attitude, brand interest is considered an important motivational factor [80]. The most important characteristics of interest are 'clear motivational and goal components, particularly for exploration, information seeking, and learning'; there is also high attentional activity [88] (p. 89). All of these characteristics (exploration, information seeking, and learning) are of high relevance in a branding context. Specifically, consumers' brand exploration is very relevant to learning about a brand's benefits, which in turn influences choice processes [98]. Other research confirms that high levels of brand interest cause consumers to investigate a brand further by searching for additional information about the brand [99]. Brand interest increases consumers' willingness to try a brand [80]. In the context of media planning, brand interest fully mediates the impact of the media mix on purchase intention [100]. Despite being conceptually different constructs, brand attitude

and brand interest are assumed to correlate with each other. Prior research acknowledges that brand messages which deviate from established perceptions prompt consumers to further investigate the content of the message [101], in other words, increase interest. This process leads in turn to more favorable brand evaluations [102]. Against this background, we suggest the following:

**H3.** *Brand attitude (a) and brand interest (b) mediate the impact of an anthropomorphized label design on standardized packaging on purchase intention.*

**H4.** *Brand interest and brand attitude sequentially mediate the impact of an anthropomorphized label design on standardized packaging on purchase intention.*

Figure 1 illustrates the conceptual research framework.

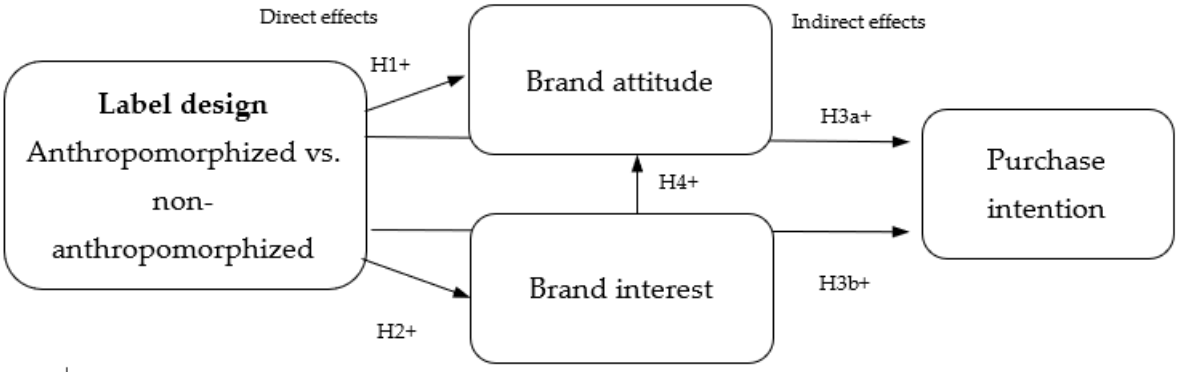


**Figure 1.** Research model of the influence of anthropomorphism in label design on brand attitude, brand interest, and purchase intention.

## 3. Materials and Methods

The empirical study tested whether an anthropomorphized brand label prompts a more positive brand attitude and stronger brand interest compared with non-anthropomorphized brand labels. We employed an experimental design instead of a descriptive design since experiments are the best way to identify causal relationships [103]. Lab-based experiments are considered the gold standard for drawing causal inferences and benefit from high internal validity [104]. The randomized procedure employed in the study qualifies our experiment as a true experiment and hence ensures unbiased estimates of the average treatment effect [105]. Specifically, we employed a one-factor (two-level) between-subjects design with the anthropomorphism of the product label representing the manipulated variable.

### *3.1. Participants and Design*

A total of 151 participants, recruited through the online platform "clickworker" participated in the experiment for a payment of 30 cents. Participation in the survey was offered to German-speaking respondents, preferably those living in Germany. Among all German-speaking countries, Germany has by far the largest population (i.e., 84 million people [106]). Hence, for the purpose of the generalizability of our findings, Germany was selected as the target market for our experiment. Participants were asked to complete the survey on a desktop computer or notebook, which was set as a requirement for completing the survey. Further, we specified that respondents within the age range 18–65 were eligible for the survey. The survey duration was 3–4 min. Data were collected on 19 May 2021.

On average, respondents indicated that they had purchased the target product, pickles, 4.4 times in the last six months. The mean age of our sample was 41, and 34% were female. Participants varied according to their highest education: 51% completed a university degree, 24% finished high school, 16% had an apprenticeship, 8% completed a vocational

school, and 1% visited a compulsory school. Table 1 summarizes the demographic data of our participants.

**Table 1.** Summary of Age, Gender, and Education.

| | Age | Gender | Education |
|---|---|---|---|
| Anthropomorphized Label ($n$ = 68) | $M$ = 40<br>$SD$ = 12 | 34% female<br>65% male<br>2% diverse | University degree: 49%<br>High school: 19%<br>Apprenticeship: 19%<br>Vocational school: 13%<br>Compulsory school: 0% |
| Non-Anthropomorphized Label ($n$ = 83) | $M$ = 41<br>$SD$ = 12 | 35% female<br>64% male1<br>% diverse | University degree: 53%<br>High school: 28%<br>Apprenticeship: 15%<br>Vocational school: 4%<br>Compulsory school: 1% |
| Total ($n$ = 151) | $M$ = 41<br>$SD$ = 12 | 34% female<br>64% male<br>1% diverse | University degree: 51%<br>High school: 24%<br>Apprenticeship: 16%<br>Vocational school: 8%<br>Compulsory school: 1% |

### *3.2. Stimulus Material and Measures*

Three criteria guided the selection of the brand category for our experiment: First, we searched for a product category that is currently sold in non-standardized single-use containers which are likely to be standardized in the future. In this regard, it has to be noted that under the sustainable products initiative, the European Commission [107] focuses on a legislative initiative on reuse to substitute single-use packaging. Second, the target product category was required to have a rather typical package design across different brands in the same brand category, which allows for DRS in the future. Finally, given that utilitarian purchase decisions are often associated with low involvement and hence activate the use of heuristics (i.e., reliance on package design), the target product category was required to be of utilitarian nature in the FMCG market [108,109].

After extensive discussion among the authors, the product category of pickled cucumbers was selected. We created a fictitious supermarket shelf showing six brands of pickles (two rows, three brands in each row). To enhance the realism of the stimulus, we relied on real-world products while eliminating the brand names. We further included two facings of each brand to mimic a real shelf. The middle product in the first row represented the target brand and was manipulated in the experimental condition: While the control condition exposed participants to a typical brand label for pickles, the pickle jar in the anthropomorphized condition showed respondents a label with an anthropomorphized pickle: On the label, a humanized pickle was shown with waiving arms, legs, a smiling face, and a name tag introducing the name 'Nicki'.

In the subsequent questionnaire, the target brand (i.e., Nicki the pickle in the anthropomorphized condition, or the pickle jar with the corresponding location in the control group) was presented to respondents with the request to answer questions related to this brand. The questionnaire started with a single item assessing the success of the manipulation: To what extent does the design of the label remind you of human-like characteristics? [110]. Afterward, a set of questions assessed the focal constructs of our research: brand interest, brand attitude, and purchase intention using 7-point rating scales. Four items measured with a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) collected information about respondents' brand interest: I find this product interesting, I find this product boring (reverse coded), This product makes me curious; I am interested in this product ([88]; Cronbach's alpha = 0.88). For assessing brand attitude, participants were asked: What is your general opinion of the product shown previously? with the following answer categories presented on a 7-point semantic differential (−3 to +3): Unfavorable/Unfavorable, I

do not like/I like, Negative/Positive, Bad/Good [111]; Cronbach's alpha = 0.96). Finally, purchase intention was measured with the scale developed by Moon et al. [112]; Cronbach's alpha = 0.95) on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree): I would buy this product, If I had a choice, I would choose this product, and There is a high probability that I would buy this product. Responses to items using seven-point Likert scales were considered interval-scaled. All scale points were labeled numerically from 1 to 7 equating to strongly disagree and strongly agree, respectively. With this scale labeling, it can be assumed that the distances between the scale points were viewed as equal by the respondents so that the variables can be considered interval-scaled and composite scores can be calculated [113]. We calculated composite scores for the items of brand interest, brand attitude, and purchase intention; mean values were used for the MANOVA and the serial mediation analysis.

## 4. Results

The analysis started with the investigation of the effectiveness of the manipulation. A one-way ANOVA with the experimental groups as factor variables and the anthropomorphism measure as the dependent variable confirmed that the manipulation of our stimulus material was successful. Respondents evaluated the anthropomorphized brand label as having more human-like characteristics ($F(1, 149) = 43.52$, $p < 0.01$, $M_{Antro} = 4.04$ vs. $M_{Non\text{-}Antro} = 2.25$).

The analysis proceeded with the hypothesis testing. In H1, we postulated that anthropomorphized labels would increase brand attitude, and in H2, we proposed that consumers would react with higher interest to the anthropomorphized label design compared with the non-anthropomorphized label design. These two hypotheses were tested with a multivariate analysis of variance (MANOVA) with the experimental condition as a factor variable and the two variables brand attitude and brand interest as dependent measures. The analysis showed a significant model (Pillai's trace: 0.09, $F(2, 148) = 7.02$, $p < 0.01$). We did not find a positive effect of the anthropomorphized label on brand attitude ($M_{Antro} = 4.74$, $SD = 1.52$ vs. $M_{Non\text{-}Antro} = 4.71$, $SD = 1.47$, $F(1, 149) = 0.01$, $p = 0.91$) (see Figure 2). This finding was unexpected and contradicts H1. However, the findings revealed a significant effect of the label design on brand interest ($F(1, 149) = 6.36$, $p < 0.05$). Using an anthropomorphized label resulted in higher brand interest compared with a standardized label ($M_{Antro} = 4.56$, $SD = 1.38$ vs. $M_{Non\text{-}Antro} = 3.98$, $SD = 1.39$) (see Figure 2). This result confirmed H2.

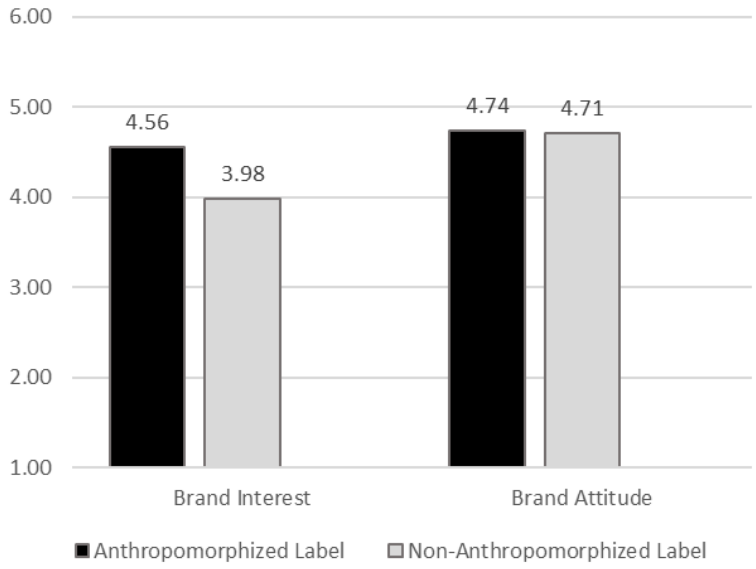


**Figure 2.** Mean comparisons for brand interest and brand attitude for the anthropomorphized vs. the non-anthropomorphized label conditions.

The mediating effects of brand attitude (anthropomorphized label → brand attitude → purchase intention; H3a) and brand interest (anthropomorphized label → brand interest → purchase intention; H3b) on purchase intention and the sequential mediation of brand interest and brand attitude on purchase intention (anthropomorphized label → brand interest → brand attitude → purchase intention) were examined in a mediation analysis. We estimated a serial mediation analysis (PROCESS, model 6; bootstrap sample $n = 5000$, see Table 2 for a summary of the results). A dummy for the two conditions (the non-anthropomorphized label coded as 0 vs. the anthropomorphized label coded as 1) was the independent variable. As the non-anthropomorphized label represented the reference category, the effects of the anthropomorphized label design were interpreted. Brand interest was specified as the first mediator, brand attitude represented the second mediator, and purchase intention was included as the dependent variable in the model.

**Table 2.** Results of the serial mediation analysis.

| | | **Mediators/Dependent Variables** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **$M_1$ Brand Interest** | | | | **$M_2$ Brand Attitude** | | | | **Y Purchase Intention** | |
| **Antecedent** | | **Coeff.** | **SE** | ***p*** | | **Coeff.** | **SE** | ***p*** | | **Coeff.** | **SE** | ***p*** |
| Label design | $a_1$ | 0.57 | 0.23 | 0.01 | $a_2$ | −0.44 | 0.16 | 0.01 | $c'$ | −0.37 | 0.15 | 0.02 |
| Brand interest ($M_1$) | | | | | $d_{21}$ | 0.82 | 0.06 | 0.00 | $b_1$ | 0.53 | 0.08 | 0.00 |
| Brand attitude ($M_2$) | | | | | | | | | $b_2$ | 0.54 | 0.08 | 0.00 |
| Constant | $i_{M1}$ | 3.98 | 0.15 | 0.00 | $i_{M2}$ | 1.43 | 0.25 | 0.00 | $i_{M3}$ | −0.58 | 0.26 | 0.03 |
| | | $R^2 = 0.04$; $F(1, 149) = 6.36$; $p < 0.05$ | | | | $R^2 = 0.58$; $F(2, 148) = 103.58$; $p < 0.01$ | | | | $R^2 = 0.73$; $F(3, 147) = 129.70$; $p < 0.01$ | | |
| Indirect effects | | | | | | | | | | | | |
| Anthropomorphized label → brand interest → purchase intention | | | | | | | | $a_1b_1$ | | 0.30, *CI* [0.07, 0.57] | | |
| Anthropomorphized label → brand attitude → purchase intention | | | | | | | | $a_2b_2$ | | −0.24, *CI* [−0.49, −0.06] | | |
| Anthropomorphized label → brand interest → brand attitude → purchase intention | | | | | | | | $a_1d_{21}b_2$ | | 0.26, *CI* [0.06, 0.51] | | |

Note. Unstandardized *b* coefficients. 5000 bootstrapping samples; $n = 151$.

The direct effects of label design on brand interest confirmed the results of the MANOVA (see Table 2, left part): the parameter estimates confirm that an anthropomorphized label design has a positive impact on interest (0.57, $p = 0.01$). Interestingly, the mediation analysis revealed a negative effect on brand attitude (−0.44, $p = 0.01$). Both brand interest (0.53, $p < 0.01$) and brand attitude (0.54, $p < 0.01$) positively mediated purchase intention. An inspection of the indirect effects shows that brand attitude alone negatively affected purchase intention (anthropomorphism → brand attitude → purchase intention: −0.24, *CI* [−0.49, −0.06]), which rejected H3a. Confirming H3b, the indirect effect of anthropomorphized labels on purchase intention through brand interest was significant and positive (0.30, *CI* [0.07, 0.57]. As expected, the sequential mediation effect through brand interest and brand attitude is significant and positive (anthropomorphism → brand interest → brand attitude → purchase intention: 0.26, *CI* [0.06, 0.51]), supporting H4. A negative direct effect of anthropomorphism on purchase intention (−0.37, $p < 0.05$) provides further evidence of the relevance of brand interest as a mediating mechanism to achieve a positive effect of anthropomorphized labels in the field of standardized package design. Figure 3 summarizes the results of the hypothesis testing by highlighting the positive and negative effects of anthropomorphism in label design on brand attitude, brand interest, and purchase intention.

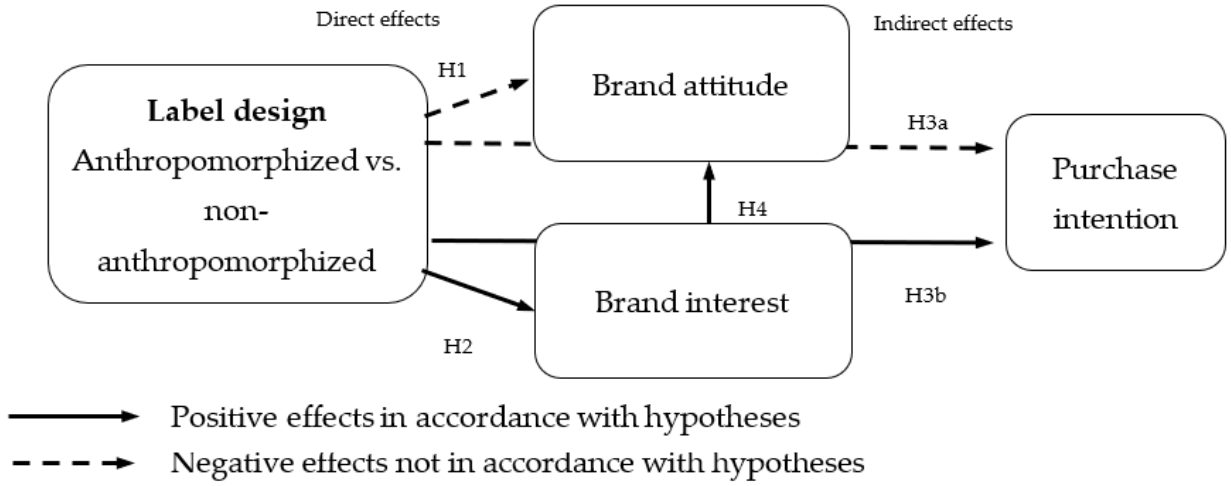


**Figure 3.** Summary of the influence of anthropomorphism in label design on brand attitude, brand interest, and purchase intention.

## 5. Discussion

Overall, the findings yielded by the statistical analysis confirmed our theoretical reasoning that anthropomorphized labels are a promising strategy for standardized packaging to stand out from the crowd. In the experiment, we created a fictitious character, Nicki the pickle, that prompted participants' brand interest and subsequently brand attitude, positively impacting purchase intentions. Surprisingly, the multivariate analysis of variance and the mediation analysis revealed that the anthropomorphized label did not impact brand attitude directly but instead only through brand interest. Further, the results of the mediation analysis confirmed the postulated sequential mediation of anthropomorphized label → brand interest → brand attitude → purchase intention. In other words, our analysis demonstrated that in the context of standardized glass containers, an anthropomorphized label has the potential to stimulate interest in the brand, which seems to be an important predictor of brand attitude. Brand attitude, in turn, increases purchase intentions.

Given the superiority of DRS models to alternative waste disposal policies in controlling waste pollution [20], our findings offer several important theoretical and managerial implications. First, our findings expand on prior research on anthropomorphism in package design [53,55,63]. In contrast to prior research, the current study concentrates on label design, which was identified as one package design element that could be manipulated in the context of DRS. While the package shape needs to be unified to enable efficient DRS [12], manufacturers and brand managers can adapt the label to differentiate their products at the point of sale. Hence, this result is of particular relevance from a practical perspective. Policymakers might refer to this finding when introducing legislation on multiple-use DRS to convince manufacturers and brand managers of the benefits of these systems. Manufacturers can rely on anthropomorphized label design to stand out from the crowd and to positively affect product choice even when following a unified package design in the respective category.

Second, brand interest alone was also identified as a significant mediator explaining the impact of anthropomorphized labels on purchase intention. Further, brand interest was positively correlated with brand attitude. This result emphasizes the relevance of brand interest and validates prior research postulating a conceptual difference between brand interest and brand attitude [80]. Interestingly, brand interest has been rather neglected in prior research. Although the importance of stimulating curiosity through the use of package design has been acknowledged in prior research [89], the role of brand interest in explaining favorable consumer responses to anthropomorphized packages has been not researched so far. This is remarkable since our research demonstrates a superior role of brand interest compared with brand attitude.

Third, and related to the previous point, our results contradict our hypotheses on the positive impact of anthropomorphized package design on brand attitude by revealing a non-significant impact in the MANOVA and a negative impact in the mediation analysis. Hence, it seems that anthropomorphized brands might negatively impact purchase intention through a negative correlation with brand attitude. Hence, our results contradict extant findings on the positive effects of brand anthropomorphism on brand attitude [63–65], although they do support studies reporting no effect [68,69] or a negative effect [70,71]. It is important to note that this negative influence is attenuated by brand interest. That is, brand interest compensates for any negative brand attitude prompted by anthropomorphized labels. Indeed, our findings reveal that despite the negative direct impact of anthropomorphized labels on brand attitude, anthropomorphized labels indirectly prompt favorable brand attitude through brand interest. This finding emphasizes the relevance of brand interest and demonstrates that brand attitude prompts purchase intention only when an anthropomorphized label design prompts interest as well.

## 6. Conclusions

In the last decade, there has been a dramatic increase in single-use plastic packaging in the food industry [114]. The environmental damage associated with food package waste is alarming and forces policymakers to introduce new regulations on waste management. In particular, the food industry faces the challenge of reducing not only food waste but also food packaging waste, with the latter being the focus of current research. As a recent study reported [115] (p.1), 'packaging plastics account for half of the global plastic waste' with a considerable volume of single-use food packaging plastics. Accordingly, there is the need to rely on environmentally friendlier food packaging.

One strategy is to switch from plastic packaging to glass packaging, but this strategy is only beneficial from an environmental perspective when complemented with a multi-use DRS [3]. Accordingly, the European Commission has developed action plans for the circular economy that call for legislative initiatives on reuse to substitute single-use packaging [107]. Hence, it can be expected that future directives and legislation will force manufacturers and retailers to adopt multi-use DRS, which comes with the challenge of finding alternative ways to make products stand out at the point of sale. Without the opportunity to manipulate the package shape, which has been acknowledged as an important design element for prompting brand attitude and behavioral intentions, it is important to illustrate alternative differentiation strategies.

Following this notion, the current research identifies label anthropomorphism as a good differentiation strategy for standardized glass containers. This finding might overcome the challenge of finding a new marketing strategy for standardized packaging [31]. Acknowledging not only the benefits but also the limitations in terms of branding of standardized packages, and providing a solution for these limitations, might help policymakers to convince manufacturers and retailers on the implementation of DRS. Under this perspective, the findings of our study will support DRS advocates' arguments and hence increase food sustainability by contributing to retailers' and manufacturers' acceptance of DRS. Our study's finding that label anthropomorphism prompts brand interest provides valuable guidance on branding and marketing decisions regarding standardized packaging.

The provision of branding strategies for standardized packaging will further help to convince manufacturers and retailers of the advantages of DRS and allow for a smooth transition from single-use packaging to multiple-use packing. Higher adoption rates of DRS will further secure the circularity of packaging. Our findings can be used to complement policymakers' communication strategies regarding multiple-use DRS by offering manufacturers, brand managers, and retailers new avenues for effective marketing strategies for unified packaging. This approach might eliminate or at least reduce one factor leading to hesitation regarding the introduction of multiple-use DRS. Overall, the results of our study contribute to a better understanding of how organizations can be encouraged to switch to multi-use DRS. This is important because such systems achieve their maximum

effectiveness, and thus the best possible improvement in the sustainability of food packaging, when as many manufacturers as possible participate. In particular, we show that label anthropomorphism is a promising strategy for uniform food packaging since it allows for combining both ecological and economic goals instead of weighing them against each other, which has often enough led to the ecological added value being crowded out through a solely economic focus.

## 7. Limitations and Future Research

As with all studies, our research has some limitations which provide avenues for future research. First, we concentrated on one product category only, namely pickles. In the context of pickled cucumber packaging, consumers might prefer to concentrate on how to fulfill a utilitarian requirement when purchasing pickled cucumbers rather than focusing on the valence of goal-relevant action. In this context, prior research confirms that anthropomorphism might backfire [70]. Since our results also revealed a negative direct effect of anthropomorphism on purchase intention, future research is encouraged to investigate if the product category (i.e., utilitarian vs. hedonic) serves as a boundary condition for a positive effect of anthropomorphism on purchase intention. Second, future studies are needed that validate our results with a sample drawn from a different population. Our sample was drawn from German consumers only, and hence, the generalizability of our findings is limited to this target population. In this context, the limited external validity of our online experiment needs to be mentioned. Future research might consider replicating our findings with a field experiment. Finally, there are various ways to anthropomorphize brands. We relied on a fictitious character, but it would also be worth exploring how simple design elements such as eyes and a mouth on the label might impact brand interest and purchase intention. Alternatively, brands relying on standardized packaging can also be humanized in advertisements by simple textual statements.

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