Less is More: The Effect of Minimalistic 'White Space' Design on Utilitarian and Hedonic Products

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Abstract

This bachelor's thesis investigates the influence of minimalistic ‘white space’ package design on consumer perceptions of utilitarian (milk) and hedonic (chips) food products. A 2 (minimalistic vs. non-minimalistic design) x 2 (utilitarian vs. hedonic product) between-subjects experiment (N = 172) was conducted to assess brand attitude, product attitude, purchase intention, perceived quality, and product purity. Results showed that non-minimalistic designs led to more favorable brand and product attitudes and higher perceived quality. An exploratory analysis of the interaction effect between product type and package design revealed that minimalistic designs decreased perceived quality for hedonic products but had no effect on utilitarian ones. Consumer familiarity with minimalism was added as an exploratory covariate and positively influenced product attitude. These findings suggest that while minimalistic design may align with modern branding aesthetics, it does not universally enhance consumer perceptions. This suggests that product package design is not a one-size-fits-all strategy, and designs may need to be tailored to product type and audience familiarity with minimalistic packaging.

Keywords: Minimalistic Design, White Space, Packaging, Hedonic Products, Utilitarian Products, Consumer Perceptions, Brand Attitude, Product Attitude, Product Purity, Product Quality

1. Introduction

The modern-day consumer is often overwhelmed with package designs competing for their attention, with each design being more eye-catching than the other. In this busy visual landscape, packaging plays an important role in shaping consumer perceptions and guiding purchase decisions. It is especially important because packaging serves as the primary way for consumers to evaluate a product when they cannot interact with it physically (Silayoi & Speece, 2004). This study focuses specifically on food packaging because, unlike durable goods, food products are typically lower-involvement purchases where quick, visually driven decisions are common (Silayoi & Speece, 2004). Beyond its informative role, food packaging communicates product qualities, characteristics, and brand values (Yangang, 2021; Bublitz et al., 2010; Orth & Malkewitz, 2008). When used effectively, food packaging can reinforce brand identity and offer companies a competitive advantage (Rundh, 2009). In this context, it acts not only as a practical necessity but also as a persuasive design feature that can influence how consumers perceive a product's value, quality, taste, and even healthfulness (Silayoi & Speece, 2004; Tassawa & Khumhome, 2023).

To understand how packaging can have these effects, it is important to understand the visual design components that go into it. Examples of these design components are imagery, layout, and color. These elements play a role in brand identity and sensory communication and can be more influential than textual information in food packaging. (Togawa et al., 2019; van Rompay et al., 2016; Karnal et al., 2016; Hallez et al., 2023; Kelly et al., 2024; Shahwar et al., 2024).

A visual approach that has gained popularity throughout the years is minimalism. In recent years, many brands have adopted minimalistic package design as part of a broader shift toward simplicity, clarity, and visual restraint. While minimalism is not a new design philosophy, its use in packaging, particularly through the use of white space, has become

more prominent in various consumer goods sectors (J. Liu, 2018; Dai, 2023; Gumber, 2023). Brands across different product categories have adopted minimalistic packaging. For example, Apple's electronics, Muji's household goods, and The Ordinary's cosmetics have implemented minimalistic packaging across their products.

A common design element that incorporates minimalism is white space, often referred to as empty or negative space. It describes the space between individual design elements or around a design (Chen et al., 2017; Mann, 2018). White space originates from the mid-20th-century minimalist and corporate design movements in North America. It became popular through the advertising revolution in the 1960s, where designers and agencies began to prefer clean and elegant layouts (Pracejus et al., 2006). Over time, white space has been used to communicate qualities such as trustworthiness, power, modernity, and high-end positioning, and it is still widely used to convey these meanings. In the context of food packaging, where visual design plays an important role, white space can significantly influence consumer perception by communicating product purity, sophistication, and quality (Pracejus et al., 2006; Anh Ton et al., 2024; Pieters et al., 2010; Wibowo & Zainudin, 2024).

This thesis investigates the effect of minimalistic white space design on five aspects of consumer perception: brand attitude, product attitude, purchase intention, perceived quality, and product purity. Since research suggests consumers may view design components like white space differently depending on whether the product is hedonic or utilitarian (F. Liu et al., 2020), this study also examines whether the effects on consumer perception vary between two different product types, utilitarian (milk) and hedonic (chips).

Although previous research has explored the impact of white space in package design, none has specifically tested whether product type moderates the effect of minimalistic package design. An example of research that tested two different product types, but did not study a moderation effect is AnhTon et al. (2024). They tested minimalist vs. maximalist

packaging for a hedonic (chips) and a utilitarian (detergent) product. However, their manipulation involved broader design differences and only the effect of white space. Moreover, their comparison was done over different product sectors (food vs. household), making it difficult to attribute effect specifically to product type. A second example is Wu (2023), who compared low-end and high-end products (chips and chocolate), though both were hedonic.

In contrast, this study examines two products from the same category (both food items) while differing in product type (hedonic vs. utilitarian). This allows for a more controlled test of how product type interacts with minimalistic packaging. This distinction is important, as consumers approach hedonic and utilitarian products with different goals and expectations, which may shape how white space is perceived (F. Liu et al., 2020; Baltas et al., 2017; Lu et al., 2016).

The research questions are:

RQ1: "How does minimalistic white space design influence brand attitude, product attitude, purchase intention, perceived quality, and purity?"

RQ2 (exploratory): "Does product type (hedonic vs. utilitarian) moderate the effect of minimalistic white space design on these perceptions?"

By answering these questions, organizations may be able to communicate more effectively with consumers and position their products more strategically. Consumer purchase decisions could also be influenced by letting the package match the product type more fittingly.

2. Theoretical Framework

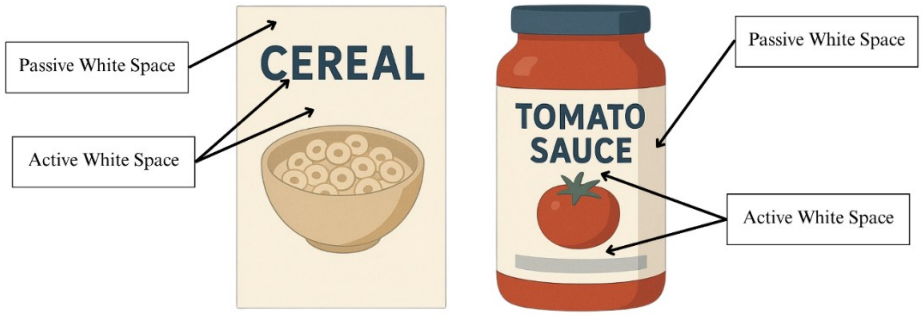
2.1 White Space

In this thesis, the terms white space and minimalistic design are used in close connection, as white space is an important feature of minimalistic designs. While minimalism included broader design elements such a color, typography, and layout, this thesis focuses specifically on white space as the main element of minimalistic visual design.

As briefly introduced in the introduction, white space can be divided into two forms: active white space, which appears between individual design elements, and passive white space, which surrounds a design (Figure 1) (Chen et al., 2017; Mann, 2018). While white space can refer to both active and passive forms, this study focuses specifically on active white space. The stimuli were mainly manipulated in terms of spacing between elements and visual complexity, rather than focusing on margins or space around the design, aligning with prior research that states that specifically active white space has been shown to influence consumer perceptions more directly. For example, Sharma & Varki (2018) note that active white space improves visual evaluation and brand communication, especially for brands with exciting or sophisticated identities. Unless stated otherwise, all references to white space from this point onwards refer to active white space.

Figure 1

Food Package Designs With Active White Space (AWS) and Passive White Space (PWS)



2.2 Effect of White Space Packaging on Consumer Perception

Package design, especially elements like colors, layout, and typography, plays a central role in shaping consumer perception (Hallez et al., 2023; H. Wang et al., 2023; Ampuero & Vila, 2006). As Silayoi & Speece (2004) argue, these visual elements help convey the product's identity and function at a glance, with simple, uncluttered designs often standing out more clearly and drawing greater consumer attention.

It is important to note that consumers do not interpret visual design in the same way. Individual differences in visual literacy, defined as the ability to interpret and respond to visual design, can influence how packaging is perceived. Consumers with higher visual literacy are more likely to respond favorably to minimalistic designs, whereas others may prefer more explicit cues or textual information (Avgerinou & Pettersson, 2011; Noble & Bestley, 2005; Wibowo & Zainudin, 2024).

These differences in design interpretation are reflected in how consumers process minimalistic packaging. Roininen et al. (1999) found that minimalist designs lower cognitive load and lead to faster, more intuitive product evaluations. However, this same simplicity can also result in lower visual engagement and weaker perceptions of informativeness. This suggests that while minimalism may enhance efficiency for some consumers, it may fail to meet the informational needs of others, particularly those with lower visual literacy or a preference for more sophisticated design cues.

Building on these previous studies, this thesis focuses on how minimalistic white space design affects five dependent variables: brand attitude, product attitude, purchase intention, perceived product quality, and perceived product purity.

Brand attitude refers to an overall evaluation of the brand. Research by Margariti (2021) shows that white space can foster more favorable brand attitudes by increasing perceptions of trustworthiness and quality. Similarly, Pracejus et al. (2006) suggest that white

space influences consumers' brand attitude by signaling prestige and a high-end position. Building on this, (Y. Wang et al., 2023) states that minimalistic design elements, such as white space, can increase brand authenticity, which in turn influences how the brand is perceived.

Product attitude involves the evaluation of the product itself and how appealing and desirable it seems based on packaging elements. Research by Anh Ton et al. (2024) and Saintives & Meral (2024) shows that minimalistic white space packaging can lead to favorable product impressions, because consumers think the product is more pure, natural, or higher quality. This increases the uniqueness perception of a product, which can influence product perceptions. Pieters et al. (2010) argue that the positive impact of white space may be attributed to reduced visual clutter, which lowers feature complexity and enhances consumer attitudes. This reduced complexity may make products appear more refined or trustworthy, which also influences product attitudes.

Purchase intention reflects the likelihood of a consumer purchasing the product. Some studies suggest that minimalistic packaging can increase the willingness to pay and purchase likelihood, especially when consumers perceive the product as high quality or aligned with personal values (Anh Ton et al., 2024; Margariti, 2021). However, Wu (2023) highlights that this effect depends on product type, white space boosts purchase intention for high-end products, but may reduce it for low-end ones. A review of product type will take place later in this thesis, as it may play a moderating role in how white space is interpreted.

Perceived product quality refers to consumers' thoughts about the product's excellence. Minimalistic white space packaging is often associated with purity, elegance, and professionalism (Pracejus et al., 2006; Anh Ton et al., 2024). Previous studies show that consumers may interpret minimalistic design as a sign of naturalness, ingredient transparency, or careful production (Saintives & Meral, 2024), all of which can enhance

perceptions of quality. Furthermore, minimalist visuals often communicate refinement and attention to detail, potentially elevating the perceived quality of the product as well (Pieters et al., 2010).

Perceived product purity reflects the belief that a product is made with few, clean, or natural ingredients. Research by Anh Ton et al. (2024) found that minimalistic designs increase assumptions about product simplicity, which then boosts perceived purity. Supporting this, Margariti (2021) shows that white space can indirectly enhance naturalness. Building on these findings, Saintives & Meral (2024) show that minimalistic packaging increases uniqueness, which leads consumers to believe the product has higher naturalness and fewer artificial additives, both adding to the purity perception.

2.3 Hedonic and utilitarian products

Utilitarian and hedonic products differ in the purpose they fulfill. Utilitarian products are defined by their practicality and functionality, often solving problems or meeting basic needs (Lu et al., 2016; Chen et al., 2017; Mann & 11, 2018). Common examples include dairy and grains. In contrast, hedonic products are primarily consumed for pleasure, taste, and enjoyment rather than for nutritional value or health benefits. Products such as chocolate and chips fall into this category (Palczak et al., 2019; Maehle et al., 2015; Loebnitz & Grunert, 2018; Visalli et al., 2023).

Consumers prioritize different attributes depending on whether they are purchasing utilitarian or hedonic products. While price and taste are generally influential across all product categories (Maehle et al., 2015), utilitarian products are primarily evaluated based on functional attributes such as price and healthfulness. In contrast, consumers tend to assess hedonic products using sensory and emotional cues, including visual appeal, taste, and overall aesthetic quality (Maehle et al., 2015; Baltas et al., 2017).

From a package design perspective, these differences have important implications. Research shows that utilitarian products tend to benefit from packaging that emphasizes clarity, simplicity, and functional information (F. Liu et al., 2020). Hedonic products are more responsive to aesthetic and emotional features (Loebnitz & Grunert, 2018). Specifically, Loebnitz argues that the pleasure-oriented nature of hedonic foods makes them more sensitive to visual cues in package design. While Roininen et al. (1999) did not study packaging directly, their findings show that consumer evaluations of food products vary depending on individual attitudes toward health and taste, implying that product characteristics (e.g., healthfulness vs. pleasure) interact with consumer goals. These results support the idea that design effectiveness is context-dependent and that minimalistic packaging may not generate the same positive effects across all product categories.

Minimalistic packaging is often considered particularly compatible with utilitarian products, as its emphasis on clarity and order fits its functional qualities. Design elements such as white space can enhance perceptions of efficiency, transparency, and trust (F. Liu et al., 2020; Pracejus et al., 2006). However, there are also conceptual arguments why minimalistic packaging could be effective for hedonic products, particularly in premium contexts. People associate minimalism with aesthetic refinement and luxury (J. Liu, 2018), which may increase the perceived exclusivity of products. In food packaging, minimalist designs have been linked to perceptions of purity and naturalness (Anh Ton et al., 2024; Saintives & Meral, 2024). As mentioned before, these qualities are closely linked with utilitarian products. However, these characteristics could potentially also increase sensory appeal in categories like premium chips or organic snacks. Additionally, for some consumer groups, such as Gen-Z or design-literate consumers, the aesthetic quality of minimalism may be a form of hedonic value on its own (Wibowo & Zainudin, 2024).

The literature remains mixed; some studies suggest that minimalism aligns more with utilitarian products, and others argue that there is more potential for hedonic products with minimalistic designs. These perspectives suggest that the effectiveness of minimalistic packaging could differ across product types. Given the limited research and contrasting literature on this specific interaction, this study investigates the role of product type exploratorily.

2.4 Hypotheses

Based on literature on white space design, product groups this study proposed the following hypotheses to examine the impact of white space design and product type on five aspects of consumer perceptions (Figure 2).

RQ1: How does minimalistic white space design influence brand attitude, product attitude, purchase intention, perceived quality, and purity?

H1: Products with a minimalistic design (high white space ratio) will be associated with a more positive brand attitude than products with a non-minimalistic design.

H2: Products with a minimalistic design (high white space ratio) will lead to more favorable product attitudes.

H3: Products with a minimalistic design (high white space ratio) will generate higher purchase intentions.

H4: Products with a minimalistic design (high white space ratio) will be perceived as higher in quality.

H5: Products with a minimalistic design (high white space ratio) will be perceived as purer (ingredients-wise)

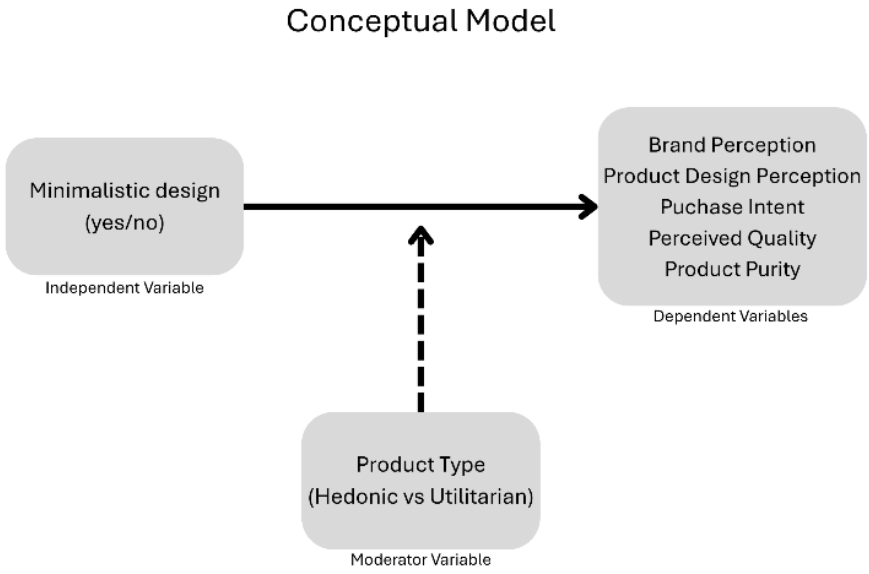
In addition to the main effects, this study also explores whether the effect of minimalistic white space design differs between hedonic and utilitarian products. Given the lack of a clear directional prediction in the literature, this interaction is treated as exploratory.

RQ2: Does product type (utilitarian vs. hedonic) moderate the effect of white space design on consumer perceptions

To test these hypotheses, an experimental 2 (minimalistic vs non-minimalistic design) x 2 (utilitarian vs. hedonic product) study was employed.

Figure 2

Conceptual Research Model



3. Methodology

3.1 Pre-test

A pre-test survey was conducted to test different manipulations and designs (Appendix B). Participants in the pre-test (N = 19; 4 male, 15 female) were recruited through convenience sampling, primarily consisting of peers and acquaintances within the university environment. While no specific expertise in design or packaging was required, all participants were representative of the general target audience for food products. All participants evaluated 5 milk and 6 chips variants of the manipulation (see figures 3 and 4). Each participant rated either the milk or chips package on the dimensions of minimalism and realism (using 5-point Likert scales ranging from “not at all minimalistic – extremely minimalistic” and “not at all realistic – extremely realistic”). Although the main aim of the pre-test was to determine which package designs were perceived as the most minimalistic, an additional measure of realism was included to ensure that the selected stimuli would be both believable and relevant to real-world consumer behavior. By measuring realism, we were able to assess whether participants perceived the designs as a believable package they might encounter in a supermarket setting. This was essential to maintain ecological validity in the main study and to ensure that the stimuli not only varied clearly in terms of white space but would also be perceived as sufficiently realistic.

The pre-test included only minimalistic package designs, as the goal was to identify the most effective minimalistic stimuli to serve as the basis for the non-minimalistic conditions in the main study. By first selecting the most clearly minimalistic designs (i.e., designs perceived as high in minimalism, as well as realism), we were able to develop matched non-minimalistic versions by adding text, enlarging elements, and increasing visual clutter, while keeping all other elements constant. This approach ensured that the

manipulation targeted the white space variable specifically, improving the validity of the manipulation check in the main experiment.

Comparison of means showed that *Chips_6* received the highest overall rating for both minimalism ($M = 3.70$, $SD = 0.48$) and purchase intent ($M = 3.89$, $SD = 0.60$), while *Chips_3* was rated highest in terms of realism ($M = 4.08$, $SD = 0.76$). For milk, image *Milk_2* stood out as the most minimalistic ($M = 4.75$, $SD = 0.46$), whereas *Milk_3* was rated highest in realism ($M = 3.67$, $SD = 1.03$) and purchase intent ($M = 3.90$, $SD = 0.88$). Appendix D shows the top-rated image for each product and dimension.

Based on the findings from this pretest, two minimalistic packages (*Milk_2* and *Chips_3)* were selected. These served as the foundation for constructing the non-minimalistic versions by adding visual elements while keeping all other aspects constant. This resulted in 4 conditions for the study that differed by product type (utilitarian vs. hedonic) and package design (minimalistic vs. non-minimalistic design), forming a 2x2 between-subjects experimental design (see figure 5).

Figure 3

Milk Variants (pre-test)

Note. Names as referred to in text

Figure 4

Chips Variants (pre-test)

Note. Names as referred to in text

Figure 5

Stimulus Materials (main study)

3.2 Main study

3.2.1 Participants

The sample size of this study was 172 participants (47 male, 124 female, 1 non-specified, age range 18-82; mean age 29 years). Participants were randomly assigned to one of four experimental conditions: condition 1 (n = 44), condition 2 (n = 42), condition 3 (n = 43), and condition 4 (n = 43). The main demographics are summarized in Table 2.

The intended target population for this study consisted of general consumers who are exposed to visual package design in retail environments. These consumers also regularly purchase packaged food products, such as chips (hedonic), milk (utilitarian), or similar items in these same categories. Since minimalistic design is seen globally in consumer goods, and this study aimed to examine general consumer responses, restrictions on age or location would have unnecessarily limited the study's relevance to the broader market. Therefore, no specific age or location restrictions were applied in the sampling process. Including a broader range of participants increases variability and ecological validity, allowing the findings to reflect how different types of consumers may respond to minimalistic versus non-minimalistic packaging.

The sample consisted of adults across a broad age range, with a concentration of younger participants due to recruitment through university platforms, social media, and convenience sampling. This approach was considered appropriate, as younger consumers are particularly active in consumer markets and frequently exposed to package design in retail environments.

Table 2

Demographic Characteristics of Participants

Characteristic	C1	C2	C3	C4
	n (%)	n (%)	n (%)	n (%)
Gender				
Female	31 (70.5%	28 (66.7%)	35 (81.4%)	30 (69.8%)
Male	13 (29.5%)	14 (33.3%)	7 (16.3%)	13 (30.2%)
Unknown	-	-	1 (2.3%)	-
Education Level				
Less than high school	-	1 (2.4%)	-	-
High school diploma or equivalent	9 (20.5%)	10 (23.8%)	14 (32.6%)	13 (20.2%)
Some college/university, no degree	8 (18.2%)	13 (31.0%)	5 (11.6%)	5 (11.6%)
Associate degree	2 (4.5%)	1 (2.4%)	-	2 (4.7%)
Bachelor's degree	20 (45.5%)	12 (28.6%)	17 (39.5%)	18 (41.9%)
Master's degree	5 (11.4%)	4 (9.5%)	5 (11.6%)	5 (11.6%)
Doctorate/professional degree	-	1 (2.4%)	-	-
Prefer not to say	-	-	1 (4.7%)	-
Occupation Status				
Student	24 (54.5%)	26 (61.9%)	27 (62.8%)	27 (62.8%)
Employed full-time	12 (27.3%)	10 (23.8%)	9 (20.9%)	10 (23.3%)
Employed part-time	4 (9.1%)	4 (9.5%)	6 (14%)	4 (9.3%)
Self-employed	-	1 (2.4%)	-	-
Unemployed and/or looking for work	2 (4.5)	-	-	1 (2.3%)
Retired	2 (4.5%)	-	1 (2.3%)	1 (2.3%)
Prefer not to say	-	1 (2.4%)	-	-

Note. N = 172 (n = 44 for condition 1, n = 42 for condition 2, n = 43 for conditions 3 and 4). Participant average age = 20 (age = 30.1 (SD = 14.34) for condition 1, age = 27.6 (SD = 11.95) for condition 2, age = 30 (SD = 15.25) for condition 3, age = 28.3 (SD = 12.88) for condition 4).

3.2.2 Procedure

The survey (Appendix C) was distributed using several different platforms, including SONA (University of Twente students), LinkedIn, TikTok, Instagram, Facebook, and physical flyers. All participants were unaware of the purpose of the study when starting and participated voluntarily.

Participants signed an informed consent form at the start of the survey. They were then randomly assigned to one of four conditions. The main effects of white space design were tested based on directional hypotheses (H1-5). The interaction between product type and design was analyzed exploratively (RQ2).

Participants viewed either milk or chips with either minimalistic or non-minimalistic designs; the image was displayed at the top of every page, and every measuring scale had its own page. The first page consisted of demographic questions, followed by six pages measuring the dependent outcomes and the manipulation check. After completing the questions, the participants were debriefed on the real goal of the study.

3.3 Measures

3.3.1 Manipulation Check

To measure the white space ratio manipulation, we included a one-item measure ("How complex do you think the package design of this product is?"). Participants could indicate how simple or complex they found the package design on a 7-point Likert scale ranging from "extremely simple" to "extremely complex."

To measure the product type manipulation, we included a one-item measure ("To what extent do you see this product as..."). Participants could indicate how functional versus pleasurable they found the product on a 7-point Likert scale ranging from "completely functional" to "extremely pleasurable."

3.3.2 Dependent Measures

There were five outcome variables measured: brand attitude, product attitude, purchase intent, perceived quality, and product purity (see Table 3 for an overview of constructs and items). All these variables were measured with items from existing scales; in some cases, items from different scales have been combined into one new scale. All scales were measured on a 7-point Likert scale with 1 = completely disagree and 7 = completely

agree. Brand attitude was measured with five items, e.g., “this brand is attractive” (Warren et al., 2019; Spears & Singh, 2004) (α = .96). Product attitude was measured with 8 items, e.g., “this design attracts me” (Becker et al., 2011; Sample et al., 2024) (α = .86). Purchase intent was measured with 7 items, e.g., “I would consider buying this product” (van Rompay et al., 2014; Wu, 2023) (α = .93). Perceived quality was measured with 5 items, e.g., “this product seems to be of good quality” (Gul Gilal et al., 2018; Nascimento et al., 2022) (α = .74), item 5 was removed based on reliability analysis. Finally, product purity was measured with 5 items, e.g., “I think this product contains few ingredients” (Anh Ton et al., 2024) (α = .87).

3.3.3 Exploratory Covariate Analysis

In addition to the primary analysis, participants’ self-reported familiarity with whitespace design was included as a covariate in an exploratory set of ANCOVAs. This approach determined whether knowledge of white space design might influence consumer responses to the white space in packaging, as suggested by research on visual literacy and design fluency (Avgerinou & Pettersson, 2011; Wibowo & Zainudin, 2024). Familiarity was measured on a 5-point Likert scale (1 = not at all familiar, 5 = very familiar). Although this analysis was not preregistered and should be interpreted with caution, it offers additional insight into whether potential individual differences in prior knowledge of white space had an effect on perceptions.

Table 3

Dependent Variable measures in main study

1. Brand attitude
1.1 This brand looks good
1.2 This brand is aesthetically appealing
1.3 This brand is attractive
1.4 This brand has a nice appearance
1.5 This brand is appealing
2. Product Attitude
2.1 This is a superior design
2.2 This is an eye-catching design
2.3 This design is cool
2.4 This design attracts me
2.5 This design has a good style
2.6 This design is unique
2.7 This design is different from other designs
2.8 This design seems to be original
3. Purchase intent
3.1 I would consider buying this product
3.2 I would recommend this product to friends and family
3.3 I would like to try out this product
3.4 It is very likely that I will purchase this product
3.5 I would think about this product of chips/milk as a choice when buying chips/milk
3.6 I would purchase this product next time
3.7 I would make a special effort to buy this product
4. Perceived Quality
4.1 The product seems to be of good quality
4.2 The product seems to be reliable
4.3 The product seems to be functional
4.4 The product seems to be highly durable
4.5 The packaging of this product influences the quality
5. Product Purity
5.1 I think this product is pure
5.2 I think this product is made of only essential ingredients
5.3 I think the essential ingredients of this product are undiluted by other components
5.4 I think this product contains few ingredients
5.5 I think this product is not mixed with many ingredients

4. Results

The data output of the survey was analysed using a 2 (minimalistic vs. non-minimalistic design) x 2 (hedonic product vs. utilitarian product) between-subjects design. A series of two-way ANOVAs was conducted to assess the main effects of package design (H1-5) and to explore whether product type moderated these effects (RQ2). In addition, exploratory analyses were conducted using participants' self-rated familiarity with minimalistic design as a continuous covariate. Each dependent variable was analysed separately.

4.1 Manipulation Checks

To verify whether the experimental manipulations were successful, two one-way ANOVAs were conducted. The first tested whether the minimalism manipulation (high vs. low whitespace) significantly influenced participants' perceptions of package complexity. The second tested whether the product type manipulation (hedonic vs. utilitarian) affected how functional versus pleasurable the product was perceived to be. These checks ensured that both independent variables were interpreted by participants in the intended way.

For the whitespace manipulation, the main effect on minimalistic design was significant ($F(1, 167) = 24.82$, $p < .001$), indicating that high whitespace designs were perceived as simpler, as intended. There was no significant main effect of product type ($F(1, 167) = 0.77$, $p = .38$), nor a significant interaction effect between the two ($F(1, 167) = 0.45$, $p = .50$).

For the product type manipulation, the main effect of product type was significant ($F(1, 167) = 41.04$, $p < .001$), indicating that utilitarian products were perceived as more functional than hedonic ones, as intended. There was also a smaller main effect of minimalistic designs ($F(1, 167) = 8.48$, $p = .004$). Products with minimalistic packaging were rated as more functional ($M = 3.24$, $SD = 1.75$) compared to non-minimalistic packages ($M =$

3.94, *SD* = 1.68). The interaction between the two factors was not significant ($F(1, 167) = 1.79$, $p = .18$).

4.2 Brand Attitude

We found a significant main effect of minimalistic packaging ($F(1, 166) = 17.47$, $p < .001$) on brand attitude. These results contradict H1, as minimalistic designs were associated with significantly lower brand attitude scores ($M = 4.10$, $SD = 1.47$) compared to the non-minimalistic designs ($M = 4.97$, $SD = 1.37$). No significant interaction effect was observed ($F(1, 166) = 0.24$, $p = .63$).

4.3 Product Attitude

A significant main effect of minimalistic design on product attitude was found ($F(1, 166) = 16.15$, $p < .001$). Contrary to H2, minimalistic products received lower attitude scores ($M = 3.53$, $SD = 1.20$) than non-minimalistic ones ($M = 4.18$, $SD = 1.11$). Furthermore, the interaction between the two factors was not significant ($F(1, 166) = 2.59$, $p = .11$). Notably, whitespace familiarity was a significant covariate in the exploratory ANCOVA ($F(1, 166) = 15.69$, $p = < .001$), indicating that a higher familiarity with whitespace design was associated with more positive product attitudes. Specifically, participants who reported the lowest familiarity had a mean product attitude of $M = 3.08$ ($SD = 1.22$), while those at the second-highest familiarity level reported a mean of $M = 4.36$ ($SD = 0.98$).

4.4 Purchase Intention

There were no significant main effects of minimalistic design ($F(1, 166) = 2.24$, $p = .14$) on purchase intention. These findings do not support H3. No significant interaction effect was observed ($F(1, 166) = 0.32$, $p = .57$).

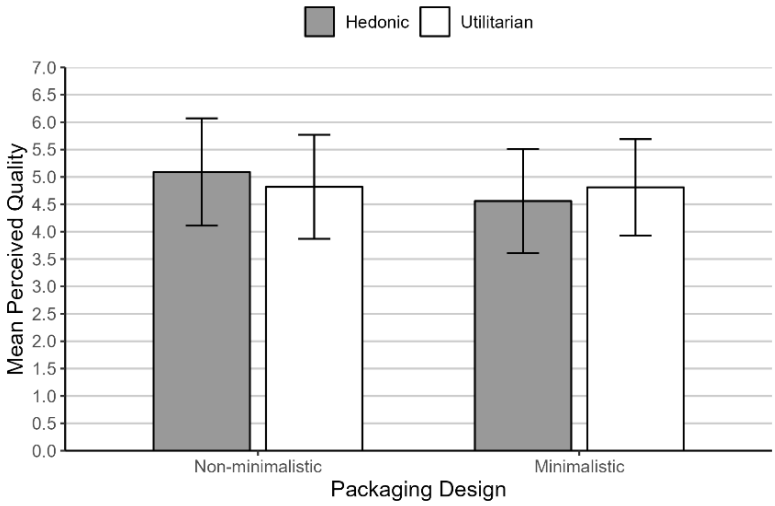
4.5 Perceived Quality

A significant main effect of minimalistic design on perceived quality was found ($F(1, 166) = 4.06$, $p = .0.046$), although the direction of the effect was contrary to H4. Participants

rated the perceived quality significantly lower for minimalistic packaging (M = 4.69, SD = 0.92) compared to non-minimalistic packages (M = 4.96, SD = 0.97). Moreover, an exploratory analysis revealed a significant interaction effect between minimalism and product type on perceived quality (F(1, 166) = 4.13, p = .044). A graph of this effect can be found in Figure 6. Follow-up comparisons indicated that for hedonic products, minimalistic design reduced perceived quality (M = 4.56, SD = 0.95) compared to non-minimalistic design (M = 5.09, SD = 0.98). For utilitarian products, perceived quality remained consistent between minimalistic (M = 4.81, SD = 0.88) and non-minimalistic designs (M = 4.82, SD = 0.95).

Figure 6

Interaction Effect Between Minimalism and Product Type on Perceived Quality



4.6 Product Purity

Minimalistic design did not significantly influence purity ratings (F(1, 166) = 0.07, p = .798), therefore, H5 was not supported. The interaction effect between the two was also not significant (F(1, 166) = 1.39, p = .24).

5. Discussion

This study investigated the effects of minimalistic white space design on brand attitude, product attitude, purchase intention, product quality, and product purity. It also exploratorily considered differences between hedonic (chips) and utilitarian (milk) products. Through a 2 (minimalistic vs. non-minimalistic design) x 2 (utilitarian vs. hedonic product) experimental design, multiple significant effects were observed that offer insight into how package design influences consumer perceptions.

5.1 Key findings and interpretations

Minimalistic packaging significantly affected brand attitude, product attitude, and perceived quality. However, these effects were contrary to H1, H2, and H4, which predicted more positive ratings for minimalistic designs. In reality, non-minimalistic designs were generally rated more positively across these constructs. This is in contrast with earlier findings that suggest that minimalism enhances perceptions of sophistication or quality (Pracejus, Olsen, & O'Guinn, 2006; Anh Ton et al. 2024).

This contrast may be explained by differences in sample demographics, cultural context, and product categories. While earlier studies (e.g., Pracejus et al., 2006; Anh Ton et al., 2024) found that minimalistic packaging enhances the perceived sophistication or purity, these effects were often observed in premium, health-oriented, non-food categories, whereas this study involved more everyday items that may not benefit from those associations with minimalism. Wu (2023), for example, found that minimalism improved the evaluation only for high-end chocolate and high-income consumers, but not for low-end products like chips, indicating that minimalism may not be equally effective across different product categories. Additionally, the widespread adoption of minimalistic aesthetics over time may have altered its symbolic meaning. Where at one point it was perceived as sophisticated, elegant, and clean, it may now be perceived as overly plain and lacking distinction (J. Liu, 2018; Y. Wang

et al., 2023). Collectively, these findings suggest that the success of packaging is not necessarily determined by the minimalistic elements in the packaging itself, but by how well the minimalistic aesthetic fits with consumer expectations and product function. Rather than assuming minimalism as an overall superior strategy, these results ask for a more nuanced, context-sensitive approach to package design.

Notably, purchase intention was not significantly affected by design factors. This means that H3 was not supported. This may suggest that perceptions about the products may not always translate into behavioural intention and action. This finding is in contrast to prior research that suggested that minimalist or high white space designs can positively influence purchase intentions. For example, Wu (2023) found that packaging with a high white space ratio increased purchase intention among high-end consumers.As the effect was not significant, no conclusions can be drawn about the relationship between minimalistic design and purchase attention based on this study alone.

Interestingly, minimalistic design did not significantly influence product purity, meaning H5 was not supported. This contrasts with previous studies suggesting that minimalistic packaging, and particularly white space, can convey associations with naturalness, simplicity, and clean ingredients (Anh Ton et al., 2024; Saintives & Meral, 2024). One explanation may be that the products used in this study already have strong, pre-existing associations with purity or indulgence, reducing the impact of design. It is also possible that participants interpreted visual simplicity more as a stylistic choice than a cue for ingredient simplicity. Another factor could be the absence of textual elements (e.g., labels like “natural” or “organic”) in real packaging that often boosts purity qualities. Without such claims, white space alone may not be enough to signal product purity. As the effect was not significant, no conclusions can be drawn about the relationship between minimalistic design and product purity based on this study alone.

The interaction between product type and white space design was explored without a specific directional hypothesis. The results suggest that minimalism lowers quality perceptions for hedonic products, while having little to no impact on utilitarian products. This aligns with previous research suggesting that hedonic products benefit more from sensory-rich or expressive visual designs (Loebnitz & Grunert, 2018). Findings from this study suggest that hedonic products may suffer from a mismatch when paired with visually restrained or simplified packaging. Since hedonic products are often associated with indulgence, taste, and sensory richness, a minimalistic design may fail to communicate these qualities effectively, thereby lowering perceived quality. In contrast, utilitarian products may not rely as heavily on expressive or decorative packaging, explaining the neutral effect. This interaction supports the idea that the success of minimalistic design is not the same across product categories, and that aligning visual design with product expectations is important.

Furthermore, the exploratory research into whitespace familiarity suggests that it could act as an important covariate for product attitude. Participants with a higher familiarity had more positive product attitude ratings, thereby highlighting the importance of design literacy. This supports existing literature that suggests that design-savvy consumers prefer minimalistic design factors (Wibowo & Zainudin, 2024). These exploratory results might explain why minimalistic packaging does not lead to more favorable product or brand attitudes overall. Participants with a higher whitespace familiarity, which can be seen as a form of design literacy, responded more positively, suggesting that the effectiveness of minimalistic packaging may depend on the consumer's sensitivity. This aligns with the idea that minimalism requires a certain amount of design fluency to be seen as intentional or premium. Without that knowledge, minimalistic designs may instead be perceived as plain or underwhelming (Wibowo & Zainudin, 2024). Thus, design literacy could be a moderating

factor in how packaging aesthetics affect consumer attitudes, highlighting the need for further studies

5.2 Limitations

The influence of package design on consumer perception has several limitations that should be noted. One factor is product preference. The test products (milk and truffle chips) may not have been universally liked by participants. A dislike or indifference towards a specific flavour or product could have suppresed purchase intention ratings, regardless of package design. This may explain why purchase intention was not significantly affected, even when the perceptions of quality and attitude did differ across conditions.

Another important limitation relates to the specific type of stimuli. While the package designs were carefully designed and pre-tested for the experiment, they were self-designed and may have lacked some elements that real commercial packaging has, such as barcodes, ingredients, or branding details. This may have reduced realism and affected how participants processed the packaging. However, these elements were deliberately excluded to keep other visual variables constant and isolate the effect of white space. Including more features might have taken the focus off the manipulation, making it unclear effects were a result of the layout or the content. Furthermore, the distinction between minimalistic and non-minimalistic designs might not have been extreme enough; the non-minimalistic designs could still be interpreted to have a substantial amount of white space. This limited contrast could have weakened the impact of any effects that were seen, which could help to explain why some hypotheses were not supported. Future research could test more detailed designs with added features that would make the designs more realistic, while also making sure there is ecological validity and experimental control.

It is important to note that the sample was relatively modest in size (n = 172) and recruited from a convenience population. This may limit the generalizability of the findings

to broader consumer groups, specifically across different age brackets, education levels, and income levels. A larger, more diverse sample could provide more insights and allow for more analysis to better understand individual differences.

Finally, the interaction effect we observed for perceived quality, as well as the white space familiarity results for product attitude. Since both were exploratory, it should be interpreted with caution in future studies with pre-registered predictions.

5.3 Practical Implications

The results of this study suggest that minimalistic design is not a universal strategy. Designs with a high white space ratio may appeal to design-savvy consumers whose preferences align with modern branding trends. However, this may not always lead to better results. Rich, multi-sensory cues are especially important for hedonic products. Package designers and marketers should consider alignment of visual design strategies with product type and target audience familiarity. One example of visual design in hedonic products could be products with more expressive and decorative packaging to increase quality perceptions.

It is important that package designers understand that a consumer's familiarity with white space design is an important factor in product attitude. Brands that target a younger, more design-conscious audience may benefit more from minimalistic designs than those appealing to different or broader audiences.

5.4 Directions for Future Research

Future research could explore how individual preferences, such as liking for specific product flavors or personal opinions of visual design, influence responses to packaging. These factors may help explain variation in how consumers interpret and react to minimalistic design, especially when sensory expectations or personal tastes are involved. Including a preference check in future studies could help distinguish the effect of different design aspects more clearly. In future research, it may also be tested whether design-product

consistency (e.g., minimalistic design for utilitarian products) influences consumer evaluations. This could involve manipulating design expectations, brand familiarity, or visual literacy to see when and for whom these interactions take place. It may also be valuable to include other product categories, such as beverages, personal hygiene products, or produce, to test the generalizability of these findings. Finally, experimental replication with a larger and more diverse sample could strengthen confidence in the observed effects and allow for analysis of potential moderators, such as cultural attitudes and demographic influence towards minimalism.

Overall, these findings demonstrate that a one-size-fits-all approach may not be enough in a heavily segmented market that is constantly evolving. It also emphasizes the nuanced role of package design in shaping consumer perceptions and suggests that less is not always more.

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Appendix

Appendix A

AI Usage Statement

In the preparation of this thesis, I utilized AI assistance to:

- Consensus was used as a database to find relevant sources
- ChatGPT 4.0 was used to structure sections and ensure the requirements of the assignment were met.
- ChatGPT 4.0 was utilised to assist with coding for data analysis in RStudio.
- Grammarly was used to rewrite sentences and ensure a proper flow throughout the text.

The AI assistance was used as a support tool to enhance efficiency and ensure comprehensiveness. All final content was reviewed, refined, and critically assessed to maintain academic integrity and alignment with the purpose of this document.

Appendix B

Pre-test survey

Survey Flow

Standard: Informed Consent (1 Question)
Standard: Explanation of whitespace (1 Question)
Standard: Demographics (2 Questions)

BlockRandomizer: 1 -

- **Standard: Chips 1 (1 Question)**
- **Standard: Milk 1 (1 Question)**

BlockRandomizer: 1 -

- **Standard: Chips 2 (1 Question)**
- **Standard: Milk 2 (1 Question)**

BlockRandomizer: 1 -

- **Standard: Rate Chips (1 Question)**
- **Standard: Rate Milk (1 Question)**

Page Break

Start of Block: Informed Consent

Q1

Welcome to the research study!

You are invited to take part in a short pre-test for a bachelor's thesis project. The goal of this pre-test is to check whether the design materials we plan to use in the main study are clear and easy to understand. You will be shown different product images and asked a few short questions about them. The study should take you around 5 minutes to complete. Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. Please be assured that your responses will be kept completely confidential.

If you would like to contact the main researcher in the study to discuss this research, please e-mail visualdesign.thesis@gmail.com. By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your

participation in the study at any time and for any reason.

○ I consent, begin the study (1)

○ I do not consent, I do not wish to participate (2)

Skip To: End of Survey If Q1 = 2

End of Block: Informed Consent

Start of Block: Explanation of whitespace

White Space In recent years, many companies like Apple, Muji, the Ordinary, and even grocery brands have started using more minimalistic designs in their packaging and ads. A technique used often in these minimalistic designs is the use of 'white space.' White space (also called negative space) is the empty area around text, images, or other parts of a design. It doesn't have to be white; it simply refers to space that's left open and uncluttered. Imagine you're walking through a supermarket. You might notice that some brands use very simple, clean designs, like just a product name, one picture, and a lot of empty space around it. This is minimalistic white space design in action. In this study, we're interested in how these minimalistic design features affect how people feel about different products.

○ I understand and want to continue to the survey (1)

End of Block: Explanation of whitespace

Start of Block: Demographics

Age How old are you?

- ○ Under 18 (1)
- ○ 18-24 years old (2)
- ○ 25-34 years old (3)
- ○ 35-44 years old (4)
- ○ 45-54 years old (5)
- ○ 55-64 years old (6)
- ○ 65+ years old (7)

Gender How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4) _____
- ○ Prefer not to say (5)

End of Block: Demographics

Start of Block: Chips 1

Minimalism Chips How minimalistic does this package design look to you?

	Not at all minimalistic (1)	Slightly minimalistic (2)	Somewhat Minimalistic (3)	Very minimalistic (4)	Extremely minimalistic (5)
Image:Chips1 (1)	○	○	○	○	○
Image:Chips6 (2)	○	○	○	○	○
Image:Chips2 (3)	○	○	○	○	○
Image:Chips3 (4)	○	○	○	○	○
Image:Chips4 (5)	○	○	○	○	○
Image:Chips5 (6)	○	○	○	○	○

End of Block: Chips 1

Start of Block: Milk 1

Milk Minimalism How minimalistic does this package design look to you?

	Not at all minimalistic (1)	Slightly minimalistic (2)	Somewhat minimalistic (3)	Very minimalistic (4)	Extremely minimalistic (5)
(1)	○	○	○	○	○
(2)	○	○	○	○	○
(3)	○	○	○	○	○
(4)	○	○	○	○	○
(5)	○	○	○	○	○

End of Block: Milk 1

Start of Block: Chips 2

Realism Chips How realistic does this package design look to you? Consider whether it looks like something you would expect to see on a supermarket shelf.

	Not at all realistic (1)	Slightly realistic (2)	Somewhat realistic (3)	Very realistic (4)	Extremely realistic (5)
Image:Chips1 (1)	○	○	○	○	○
Image:Chips6 (2)	○	○	○	○	○
Image:Chips2 (3)	○	○	○	○	○
Image:Chips3 (4)	○	○	○	○	○
Image:Chips4 (5)	○	○	○	○	○
Image:Chips5 (6)	○	○	○	○	○

End of Block: Chips 2

Start of Block: Milk 2

Milk Realism How realistic does this package design look to you? Consider whether it looks like something you would expect to see on a supermarket shelf.

	Not at all realistic (1)	Slightly realistic (2)	Somewhat realistic (3)	Very realistic (4)	Extremely realistic (5)
(1)	○	○	○	○	○
(2)	○	○	○	○	○
(3)	○	○	○	○	○
(4)	○	○	○	○	○
(5)	○	○	○	○	○

End of Block: Milk 2

Start of Block: Rate Chips

Rate Chips Imagine you are shopping in a supermarket where all of the products are priced equally. How likely would you be to purchase each of the following products?

	Definitely would not buy this product (1)	Very unlikely to buy this product (2)	Neutral/not sure this product (3)	Likely to buy this product (4)	Definitely would buy this product (5)
Image:Chips1 (1)	○	○	○	○	○
Image:Chips6 (2)	○	○	○	○	○
Image:Chips2 (3)	○	○	○	○	○
Image:Chips3 (4)	○	○	○	○	○
Image:Chips4 (5)	○	○	○	○	○
Image:Chips5 (6)	○	○	○	○	○

End of Block: Rate Chips

Start of Block: Rate Milk

Rate Milk Imagine you are shopping in a supermarket where all of the products are priced equally. How likely would you be to purchase each of the following products?

	Definitely would not buy this product (1)	Unlikely to buy this product (2)	Not sure if I would buy this product (3)	Likely to buy this product (4)	Definitely would buy this product (5)
(1)	○	○	○	○	○
(2)	○	○	○	○	○
(3)	○	○	○	○	○
(4)	○	○	○	○	○
(5)	○	○	○	○	○

End of Block: Rate Milk

Appendix C

Research survey

Packaging design survey

Survey Flow

Block: Informed Consent (1 Question)
Standard: Demographics (4 Questions)

BlockRandomizer: 1 - Evenly Present Elements

- **Standard: Minimalistic Milk (14 Questions)**
- **Standard: Non-Minimalistic Milk (14 Questions)**
- **Standard: Minimalistic Chips (14 Questions)**
- **Standard: Non-Minimalistic Chips (14 Questions)**

Standard: White Space Familiarity (exploratory) (1 Question)

Page Break

Start of Block: Informed Consent

Informed consent Dear participant, You are invited to participate in a research study about product design. This study is being conducted for a bachelor's thesis in Communication Science at the University of Twente. We are interested in the first impression people have about food products. If you agree to participate, you will be asked to answer statements about a product and its design. It will take you approximately 5 to 10 minutes to complete.
Please know that your participation is entirely voluntary and that you can stop at any point, for any reason, without consequences. All responses will be anonymous and are only visible to the researcher and supervisor. The data will only be used for academic purposes and will be deleted after this study is completed.
If you have any questions or concerns, feel free to contact the researcher at visualdesign.thesis@gmail.com.
If you have any questions about this study, please contact the research team through
email: visualdesign.thesis@gmail.com

Please read the statements below. By checking the box, you confirm that: - I have read and understood the information above - I understand that my participation is voluntary and that I can withdraw at any time - I understand that my responses will be anonymous and used only for research purposes - I agree to take part in this study

○ Yes, I agree to all the above and want to participate in this study (1)

End of Block: Informed Consent

Start of Block: Demographics

Age How old are you? Please write down your age in numbers

_____

Gender How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4) _____
- ○ Prefer not to say (5)

Education Level What is the highest level of education you have completed?

- ○ Less than high school (1)
- ○ High school diploma or equivalent (2)
- ○ Some college or university (no degree) (3)
- ○ Associate degree (4)
- ○ Bachelor's degree (5)
- ○ Master's degree (6)
- ○ Doctorate or professional degree (e.g., PhD, MD, JD) (7)
- ○ Prefer not to say (8)

Occupation What is your current occupation status?

- ○ Student (1)
- ○ Employed full-time (2)
- ○ Employed part-time (3)
- ○ Self-employed (4)
- ○ Unemployed and looking for work (5)
- ○ Homemaker (6)
- ○ Retired (7)
- ○ Prefer not to say (8)

End of Block: Demographics

Start of Block: Minimalistic MilkM Image Milk

Brand Perception Please answer the following statements about the brand of this product

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This brand looks good (1)	○	○	○	○	○	○	○
This brand is aesthetically appealing (2)	○	○	○	○	○	○	○
This brand is attractive (3)	○	○	○	○	○	○	○
This brand has a nice appearance (4)	○	○	○	○	○	○	○
This brand is appealing (5)	○	○	○	○	○	○	○

Page Break

M Milk Image

Product Attitude Please answer the following statements about the product design

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This is a superior design (1)	○	○	○	○	○	○	○
This is an eye-catching design (2)	○	○	○	○	○	○	○
This design is cool (3)	○	○	○	○	○	○	○
This design attracts me (4)	○	○	○	○	○	○	○
This design has good style (5)	○	○	○	○	○	○	○
This design is unique (6)	○	○	○	○	○	○	○
This design is different from other designs (7)	○	○	○	○	○	○	○
This design seems to be original (8)	○	○	○	○	○	○	○

Page Break

M Milk Image

Manipulation Check Please answer the following statement about the product design

	Extremly simple (1)	Very simple (2)	Somewhat simple (3)	Neither simple nor complex (4)	Somewhat complex (5)	Very complex (6)	Extremely complex (7)
How complex do you think the packaging design of this product is? (1)	○	○	○	○	○	○	○

Manipulation Check Please answer the following statement about the product

	Completely functional (1)	Mostly functional (2)	Somewhat functional (3)	Equally functional and pleasurable (4)	Somewhat pleasurable (5)	Mostly pleasurable (6)	Completely pleasurable (7)
To what extent do you see this product as... (1)	○	○	○	○	○	○	○

*

Price Check What do you think the price of this product would be in the supermarket?

_____

Page Break

M Milk Image

Purchase Intention Please answer the following statements about the product

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would consider buying this product (1)	○	○	○	○	○	○	○
I would recommend this product to friends and family (2)	○	○	○	○	○	○	○
I would like to try out this product (3)	○	○	○	○	○	○	○
It is very likely that I will purchase this product (4)	○	○	○	○	○	○	○
I think about this product of milk as a choice when buying milk (5)	○	○	○	○	○	○	○
I would purchase this product next time (6)	○	○	○	○	○	○	○
I would make a special effort to buy this product (7)	○	○	○	○	○	○	○

Page Break

M Milk Image

Perceived Quality Please answer the following statements about the product

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This product seems to be of good quality (1)	○	○	○	○	○	○	○
The product seems to be reliable (2)	○	○	○	○	○	○	○
The product seems to be functional (3)	○	○	○	○	○	○	○
The product seems to be highly durable (4)	○	○	○	○	○	○	○
The packaging of this product influences the quality (5)	○	○	○	○	○	○	○

Page Break

M Milk Image

Product Purity Please answer the following statements about the product

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I think this product is pure (1)	○	○	○	○	○
I think this product is made of only essential ingredients (2)	○	○	○	○	○
I think the essential ingredients of this product are undiluted by other components (3)	○	○	○	○	○
I think this product contains few ingredients (4)	○	○	○	○	○
I think this product is not mixed with many ingredients (5)	○	○	○	○	○

End of Block: Minimalistic Milk

Start of Block: Non-Minimalistic Milk

NM Milk Image

Brand Perception Please answer the following statements about the brand of this product

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This brand looks good (1)	○	○	○	○	○	○	○
This brand is aesthetically appealing (2)	○	○	○	○	○	○	○
This brand is attractive (3)	○	○	○	○	○	○	○
This brand has a nice appearance (4)	○	○	○	○	○	○	○
This brand is appealing (5)	○	○	○	○	○	○	○

Page Break

NM Milk Image

Product Attitude Please answer the following statements about the product design

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This is a superior design (1)	○	○	○	○	○	○	○
This is an eye-catching design (2)	○	○	○	○	○	○	○
This design is cool (3)	○	○	○	○	○	○	○
This design attracts me (4)	○	○	○	○	○	○	○
This design has good style (5)	○	○	○	○	○	○	○
This design is unique (6)	○	○	○	○	○	○	○
This design is different from other designs (7)	○	○	○	○	○	○	○
This design seems to be original (8)	○	○	○	○	○	○	○

Page Break

NM Milk Image

Manipulation Check Please answer the following statement about the product design

	Extremly simple (1)	Very simple (2)	Somewhat simple (3)	Neither simple nor complex (4)	Somewhat complex (5)	Very complex (6)	Extremely complex (7)
How complex do you think the packaging design of this product is? (1)	○	○	○	○	○	○	○

Manipulation Check Please answer the following statement about the product

	Completely functional (1)	Mostly functional (2)	Somewhat functional (3)	Equally functional and pleasurable (4)	Somewhat pleasurable (5)	Mostly pleasurable (6)	Completely pleasurable (7)
To what extent do you see this product as... (1)	○	○	○	○	○	○	○

*

Price Check What do you think the price of this product would be in the supermarket?

_____

Page Break

NM Milk Image

Purchase Intention Please answer the following statements about the product

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would consider buying this product (1)	○	○	○	○	○	○	○
I would recommend this product to friends and family (2)	○	○	○	○	○	○	○
I would like to try out this product (3)	○	○	○	○	○	○	○
It is very likely that I will purchase this product (4)	○	○	○	○	○	○	○
I think about this product of milk as a choice when buying milk (5)	○	○	○	○	○	○	○
I would purchase this product next time (6)	○	○	○	○	○	○	○
I would make a special effort to buy this product (7)	○	○	○	○	○	○	○

Page Break

NM Milk Image

Perceived Quality Please answer the following statements about the product

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This product seems to be of good quality (1)	○	○	○	○	○	○	○
The product seems to be reliable (2)	○	○	○	○	○	○	○
The product seems to be functional (3)	○	○	○	○	○	○	○
The product seems to be highly durable (4)	○	○	○	○	○	○	○
The packaging of this product influences the quality (5)	○	○	○	○	○	○	○

Page Break

NM Milk Image

Product Purity Please answer the following statements about the product

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
I think this product is pure (1)	○	○	○	○	○
I think this product is made of only essential ingredients (2)	○	○	○	○	○
I think the essential ingredients of this product are undiluted by other components (3)	○	○	○	○	○
I think this product contains few ingredients (4)	○	○	○	○	○
I think this product is not mixed with many ingredients (5)	○	○	○	○	○

End of Block: Minimalistic Milk

Start of Block: Non-Minimalistic Milk

Repeat question block 1

End of Block: Non-Minimalistic Milk

Start of Block: Minimalistic Chips

Repeat question block 1

End of Block: Minimalistic Chips

Start of Block: Non-Minimalistic Chips

Repeat question block 1

End of Block: Non-Minimalistic Chips

Start of Block: White Space Familiarity (exploratory)

Whitespace familiar How familiar are you with minimalist design or the use of white space in product packaging or advertising?

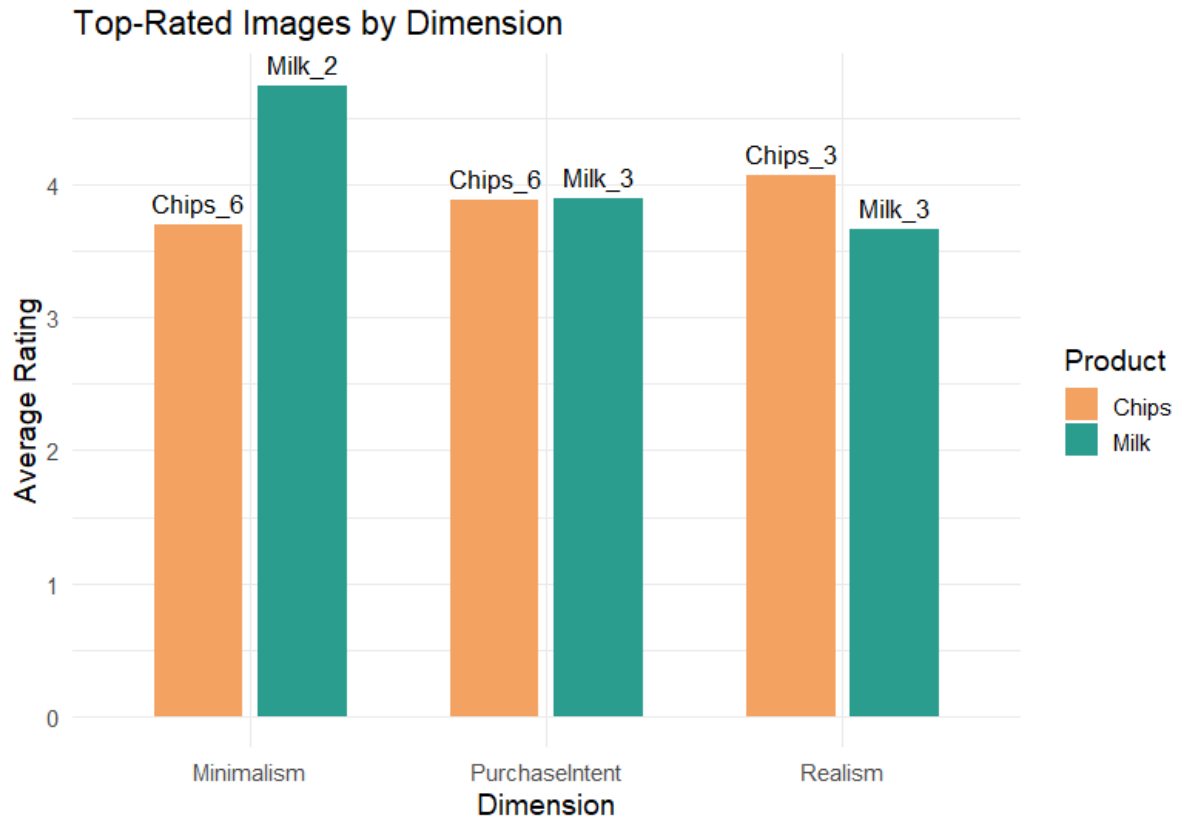
- ○ Not familiar at all (1)
- ○ Slightly familiar (2)
- ○ Somewhat familiar (3)
- ○ Very familiar (4)
- ○ Extremely familiar (5)

End of Block: White Space Familiarity (exploratory)

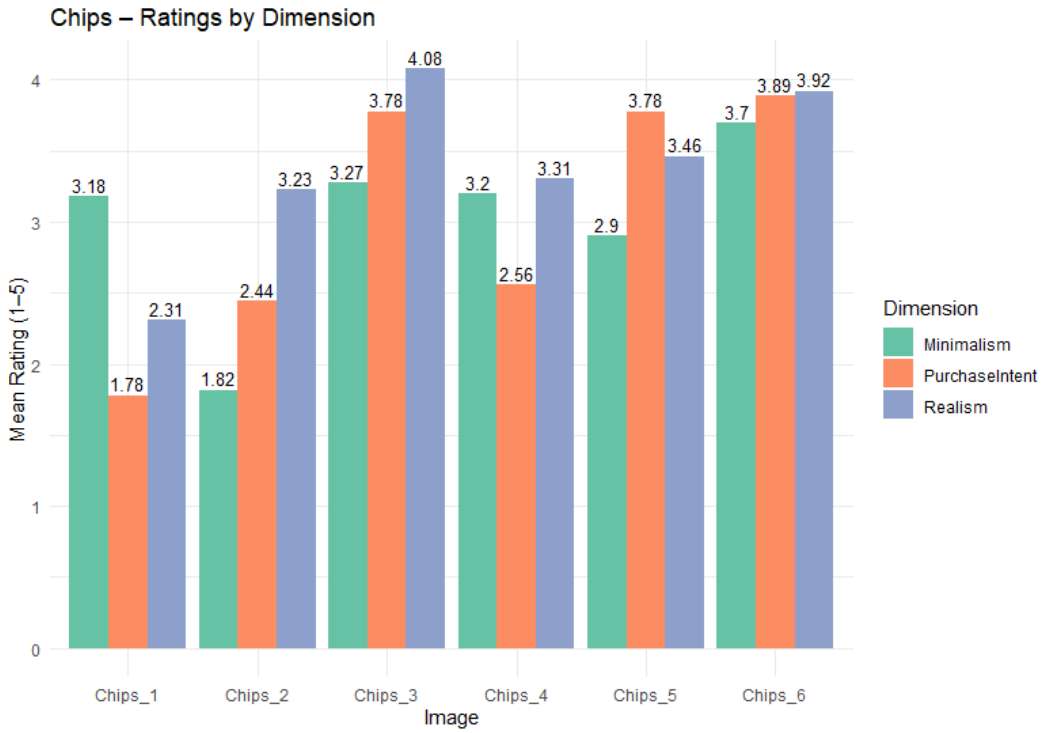
Appendix D

Figures Pre-Test Survey

Top-Rated Images by Dimension



Chips Rating by Dimension in Pre-Test Survey



Milk Rating by Dimension in Pre-Test Survey