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HOW ATYPICAL PACKAGING CAPTURES ATTENTION AND EVOKES EMOTION: AN EYE- TRACKING AND FACIAL-EXPRESSION STUDY

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Abstract

Consumers tend to select everyday products quickly. One way to attract attention is to differentiate from the competition and use an atypical text design, illustrations, or style. This study aims to determine how a package design atypicality influences the package's ability to attract attention, evoke positive emotions, and influence choice. The methodology was based on eye-tracking of consumer reactions to packaging designs. Product names, text style, illustrative images on the packaging,

and the graphic style of these images were changed. The findings show that neither first-noticed packages with a very typical design nor a very atypical design were preferred. Moderate typicality is best for catching attention, evoking positive emotions, and influencing choice. Atypical design changes may not lead to more attention or preference when developing product packaging. The research highlights the importance of typeface and the graphical style of illustration. Care is needed when choosing typefaces and illustrations.

Keywords: *eye-tracking, packaging visual elements, atypicality, package evaluation, consumer decision-making*

1. INTRODUCTION

Companies want their products to be recognised and selected; therefore, the packaging design therefore is of crucial importance. At the same time, with an oversupply of products, people's decision-making has become more complex, relying on emotions (Spanjaard & Freeman, 2012) and simple heuristics to make decisions faster. People often use only the main information: package colour, product name, and illustrations (Beneke et al., 2015; Calvo-Porrall et al., 2021).

People have habitual routes to grocery shops and notice common, very different, or emotional products (Steinmetz et al., 2014). Consumers tend to find product packaging that looks familiar. Colours, shapes, materials, typefaces, layouts, and illustrations form a visual typicality for the product category (Celhay & Trinquescoste, 2015). Packaging should therefore resemble to this visual code so that people can find it and associate it with the product category.

The package needs to be easily categorized, noticeable, and appealing. If the customer overlooks the product category, they are unlikely to buy it. The literature shows that people who like novelty and new packaging may favour atypical products (Schoormans & Robben, 1997). The atypicality effect refers to Exemplar theory (Nosofsky, 1986), which argues that attention is drawn to outliers in the category, in contrast to Typicality theory (Veryzer & Hutchinson, 1998), which states that more prototypical designs receive greater preference. Atypical designs provoke consumers to analyze the design for new information (Armstrong & Detweiler-Bedell, 2008). Deciding how different a product is from its competitors is an important decision for designers and managers (Person et al., 2008). Therefore, marketing managers need to balance typicality and novelty, but previous literature is inconclusive on the superiority of either. This paper tries to solve the contradiction between typicality and novelty.

Our paper aims to determine how package design atypicality influences the ability to attract attention, evoke positive emotions, and influence purchasing decisions. To test our predictions empirically, we selected commercially available minced-meat packaging – a grocery category where there is a certain typicality and alternative designs are available. Minced meat has a low purchase involvement, so the typicality effect is predominant.

This research is built on theories of how the atypicality of a product – by changing illustrations and text – affects the ability of a packaging to capture attention and evoke emotions. The first model (Berlyne, 1970) posits that an optimal level of typicality is hedonically preferred and has since been extended to suggest that this effect also influences attention and emotion. Secondly, graphic styles evoke different emotions (Yu & Ko, 2017). Thirdly, the emotions evoked by words affect the time in which a word is processed (Jaeger et al., 2017).

Studies (Malešević & Stančić, 2021; Dörnyei & Lunardo, 2021) show the influence of unconventional elements in packaging as factors affecting choice. They emphasize the role of design aesthetics in packaging, including atypicality, but do not directly address visual elements: package colour and typeface. By focusing on the atypical elements in package design, our study aims to reconcile these views and offer recommendations for designers and marketers.

More specifically, the present study addresses:

RQ1: Does the atypicality of package design features affect consumers' attention?

RQ2: Does a moderate level of atypicality generate the highest positive emotion?

RQ3: Does moderate atypicality positively influence choice?

RQ4: Does picture atypicality have a greater effect on attention and emotion than text atypicality?"

Given mixed findings in prior work, this study is exploratory, structured around the above research questions rather than formal hypotheses.

The research methodology combines measuring emotions (FaceReader) and attention (Tobii X2-60 eye-tracker). We used a conjoint analysis approach. Eye-tracking and the measurement of positive emotions are inputs that show the effect of different types of images on attention and emotions. Conjoint analysis enables testing the combined effect of image styles and text. More insight is gained into understanding how atypical pictures and fonts influence emotions and attention.

Positioning at the intersection of consumer behaviour and package design, this study uses a multi-method approach to understand how package atypicality influences attention and emotion. By focusing on minced meat packages for low-involvement purchases, this research creates the basis for future studies in different product categories.

2. LITERATURE REVIEW

2.1. Product Typicality, Atypicality, and Attention

Typicality is defined as the degree to which a packaging design is representative of a product category (Veryzer & Hutchinson, 1998). The most frequently used graphical characteristics – shapes, colours, typefaces, element

layouts, and illustrations – all form a “visual code” (Celhay & Trinquescoste, 2015), also used to describe typicality. The behavioural aspects that explain the existence of typical visual codes in package designs are family resemblance, perceived typicality, and cognitive category. Products fall into cognitive categories, and consumers can arrange them into respective categories based on the typical design (Loken & Ward, 1990; Nedungadi & Hutchinson, 1985). The more alike a design is to the usual product in its category, the more likely it is to be perceived as part of that category. Mayer and Landwehr (2018) measure design typicality based on Euclidean distances between feature points and pixel-by-pixel image correlations and show the ability to capture the subjective typicality experience. Franjković et al. (2017) examine retail-ready packaging among Croatian food manufacturers, highlighting how atypical graphical elements create market differentiation.

Typicality can be seen from both the demand and the supply side. Packages are produced efficiently, which generates typical production-efficient size, shape, and type. Conversely, package designs are an essential part of consumers' buying process. Usually, these types coincide, but we analyzed typicality from the demand side. Consumers see the typical packaging design the most.

The product's most important feature is capturing consumers' attention (Clement et al., 2013; Silayoi & Speece, 2007). Visual design is essential in marketing to capture attention (Hong & Byun, 2021). Unusual, out-of-context images attract consumers' attention and are watched longer, with curiosity or surprise (Seva et al., 2011).

Atypical packaging characteristics and elements could highlight the product and increase consumers' attention (Schoormans & Robben, 1997; Tsao et al., 2021). The atypical design draws attention and enhances the cognitive processing of the product and information, as measured by attention duration (Ooijen et al., 2016). On the contrary, it is easier to recognize familiar products (reduced search time) (Veryzer & Hutchinson, 1998), and less attention is given to them (Willingham, 2003). In the eye-tracking study, Clement et al. (2013) found that previous experiences with a product did not influence visual search or shorten its duration. Liu et al. (2015) studied object viewing features regarding the number of fixations, mean fixation time, and time to the first fixation. Typical features that were not unique, or unique features that were not typical, received less attention. The product is seen faster and looked at longer when the design is usual with a distinctive feature. Based on this, we form RQ1: Does the atypicality of some package design features affect consumers' attention towards the package?

2.2. Atypicality, Preference, Choice, Emotions

The typicality (or atypicality) of the design affects consumer preferences for the product and is crucial for market potential (Mayer & Landwehr, 2018). Creating a sense of innovation influences purchase decisions (Tsao et al., 2021).

Candi et al. (2017) propose considering consumers' reactions to design in three dimensions: functional, aesthetic, and symbolic. Typical products and packages are shown to be more aesthetically pleasing (Veryzer & Hutchinson, 1998). Products closely matching their category prototype are processed more fluently (Reber et al., 2004) and are often preferred.

Product designs considered typical in a category visual code are perceived as more positive (Landwehr et al., 2011) and are more likely to be chosen (Celhay & Trinqucoste, 2015). Atypical colours negatively affect the brand (Garaus & Halkias, 2020). The atypical colour of the package increases scepticism, reduces interest, negatively affects attitudes toward the product, and decreases purchase intention.

The research results regarding preference for typicality vs. atypicality are contradicting, as some results suggest a preference for innovative packages, and others show typical design preferences (Blijlevens et al., 2012; Hekkert & Leder, 2008).

An article concerning typicality (Berlyne, 1970) analyzed how consumers' preferences differed in visual complexity, showing that very complicated and too simple objects were less attractive. Hence, a balance between simplicity and complexity attracts attention and preference. Moderate atypicality is preferred, and there is a reversed U-shaped curve between appreciation and typicality (Blijlevens et al., 2012; Schoormans & Robben, 1997). Innovation level moderates the preference for typical over atypical products (Mugge & Dahl, 2013).

A moderate level of atypical design should be preferred, as typical products are perceived as less innovative, while innovative products are perceived as less typical. There is a point where these two functions intersect; this is the point with the optimal innovation-typicality levels. The typicality mediates the emotions that package designs generate. However, very typical products are not optimal. There is a balance between typicality and atypicality, which creates positive feelings. This brings us to RQ2: Does a moderate level of atypicality generate the highest positive emotions? Moreover, RQ3: Does a moderate level of atypicality positively influence customers' choices?

2.3. Changing Packaging Design Typicality by Visual and Verbal Elements

Packaging design typicality can be altered by varying elements or changing its design. The design elements are visual and verbal (Silayoi & Speece, 2007; Kauppinen-Räisänen et al., 2012). Visual elements are size, shape, illustrations, colours, typography, and text size. Verbal elements provide information (product name, brand, ingredients, references to price, discounts). Visual elements are referred to as design elements (Kauppinen-Räisänen et al., 2012), and the appearance of the packaging and its typicality depend on these elements.

Studies show that illustrations attract attention (Silayoi & Speece, 2007; Varela et al., 2014) more than verbal elements (Piqueras-Fiszman et al., 2012). Pictorial illustrations generate happier emotions than graphic rendering (Yu & Ko, 2017). The picture provides essential information concerning brands and products with low consumer knowledge. Compared to verbal elements, the image is powerful in communicating messages (Rebollar et al., 2017) and is received quickly due to its ability to enhance learning and memory (Mizutani et al., 2012). This brings us to RQ4: Does the image atypicality have a more considerable effect on attention and emotions than the text atypicality?

Typography influences perceived typicality, including letterform, spacing, and layout (McCarthy & Mothersbaugh, 2002). A specific style in typography is a typeface (collection of visually similar letters). Typeface characteristics deal with factors that affect the appearance of the letterforms, style, size, and colour (McCarthy & Mothersbaugh, 2002).

Henderson et al. (2004) studied 210 typefaces (with 24 design characteristics) and divided them into six clusters. The results showed that natural script fonts are more pleasant than simple non-ornate. Most (sans)serif typefaces are associated with directness, and some typefaces look more handwritten and cheerful (Li & Suen, 2010). Compared to simple ones, Ornate typefaces evoked more emotional responses (Liao et al., 2015). The typeface may have no effect. For example, if a person looks at the text, they concentrate on its meaning without paying attention to the typeface features (Walker, 2008). This brings us to RQ5: Does an unusual typeface catch more attention than a usual typeface?

2.4. Product Design, Perception, and Eye-Tracking

Eye-tracking is an effective marketing research method (Tarczydło, 2019; Huddleston et al., 2018). Despite many articles describing the application of eye-tracking and considering product design, the number of publications where these issues are considered together is small.

We can highlight interesting research. Pinci (2022) focuses on the traditional elements in design, suggesting the importance of typicality. Frierson et al. (2022) investigate the effect of typicality with eye-tracking. Pinci (2023) studies packaging's key visual aspects: colour, shape, and logo. The perception of packaging and its impact on cognitive and emotional aspects of choice was considered.

The emotional content perception and information on the juice packaging were the focus of Mruk-Tomczak et al. (2019). Lacoste-Badie et al. (2020) use eye-tracking to investigate the effects of symmetrical and asymmetrical front-of-packages on visual attention for fast-moving consumer goods. The product label's visual signs affect the perception of quality and purchasing intention (Boshoff & Malherbe, 2016). The package characteristics influence attention during the "orientation" phase and show how effectively the attention is transferred to the

brand during the "discovery" phase (Husić-Mehmedović et al., 2017). Guo et al. (2022) show the effect of colour on visual search.

Borgianni et al. (2019) propose the research of visual behaviour in the perception of commercial objects. The use of consumer neuroscience, eye-tracking, and so-called implicit association tests is discussed by Spence et al. (2019). Zhou et al. (2022) used eye-tracking to study the behaviour of senior food consumers. All in all, previously mentioned and other studies (Merdian et al., 2021; Barbierato et al., 2023; Buchmüller et al., 2022) lead to the conclusion that eye-tracking helps improve package design for everyday items and attest to the success of eye-tracking in different fields of marketing.

As far as the atypical design in general is concerned, the following recent articles are worth mentioning. Packaging design influences consumer response to products (Kim & Petitjean, 2021). At the same time, the product category affects how effective an unusual packaging design will be. Maleevi and Stani (2021) concentrate on graphic design style and its influence on consumer choice and product perception. It has been demonstrated that the aesthetics of the packaging significantly impact how the product is perceived. So, the packaging is crucial to the product marketing. The topic of food product design is very relevant and requires the right methodological tools for solving applied problems. The studies on consumer perception of products using eye-tracking confirm the relevance and practical benefits of this approach for designing attractive packaging. This is the first study to integrate emotion-based conjoint analysis with eye-tracking metrics in packaging design.

3. METHODOLOGY APPROACHES AND TOOLS

3.1. Design & Procedure

This research comprised two stages: the first phase was an analysis of Estonian minced meat packaging designs to identify prevalent illustration and text styles; the second phase was an emotion measurement and eye-tracking experiment. Package locations in the concentric circle and the subsequent order in which individual packages were displayed were fully randomized for each participant. In the first stage, we analyzed the illustrations and typography used in existing product packages and set what is considered "typical" in the market. On this basis, we designed ten new packaging prototypes to test these against the typical designs. In the second phase, we conducted an experiment involving 31 participants to analyze their reactions to the new designs. The data from this phase were analyzed using conjoint models that considered choices made by participants, the positive emotions they experienced, and eye-tracking data that indicated which designs drew more attention.

3.2. Stimuli Validation

We pre-tested 18 commercially available minced-meat packages with two independent coders who classified each design's illustration as realistic, graphic, or cartoon-like and each typeface as serif or script. The coders reached an agreement on these classifications. Based on their ratings, we selected ten prototype designs to adjust the illustration style and typeface orthogonally. We determined the typical illustration picture, design style, and typeface. Our analysis focused on identifying the common features in illustration pictures, design styles, and typefaces. We categorized the illustrations into realistic, graphical, and cartoon-like images and noted the typeface as either serif or sans-serif. This helped the understanding of the prevailing visual codes, such as the dominant use of photorealistic images and serif typefaces in designs. We took pictures of products from online stores and products sold in physical stores. The pictures were analyzed for illustration and name typography. The newly generated package images and typography stemmed from the commercially available minced meat packaging classifications and were coded by two raters; disagreements were resolved by discussion. Five package designs used realistic illustrations, thirteen used graphical illustration pictures, and one had cartoon-like illustrations. Hence, the typical visual code assumes a photorealistic picture as an illustration. Regarding typeface, five packages use a sans-serif typeface, while thirteen use a serif typeface.

Utilizing this data, we created new package designs that adhered to (deviated from) the established visual codes. We chose a sans serif typeface as the typical within the category and a script typeface as an atypical typeface in both the brands and category visual codes. The fonts used were Berlin Sans FB and Cookie. We also changed the product name. While usual names stated the meat type the minced is made of, some producers used additive carrot and defined the product as "carrot minced meat"; this product name was atypical.

The second packaging design element was illustration. As a typical, we used a picture of a pig; as an atypical - a picture of a carrot. The illustration style was used to enhance the atypicality further. Both pig and carrot illustration styles were changed to photorealistic, graphical, and cartoon-like. We used an orthogonal design to create ten package designs to ensure that the variations were systematic and could be analyzed objectively. Illustrations, names, and typefaces were altered on a most common package design style. The names were generated using different fonts and illustrations. The most atypical font and medium atypical illustration were chosen (Appendix).

3.3. Participants

The sample consisted of 31 people - 14 men and 17 women, aged 19 to 52. Based on eye-tracking articles, this sample is sufficient for the experiment. Chandon et al. (2009) employed 25 participants to investigate visual attention allocation and its impact on consumer choice. Gidlöf et al. (2013) used a sample

size of 32 to explore the influence of package design on visual attention. Clement et al. (2013) conducted research with 31 participants to investigate the influence of design elements on visual attention. Van Herpen et al. (2016) utilized 30 respondents to examine consumer attention. These studies demonstrate that smaller sample sizes can be used when focusing on highly salient or visually striking elements where significant effects are expected. Therefore, a size of 31 is adequate to maintain statistical power while also in line with research practices. Participants were randomly recruited, and we neglected vegans and non-meat eaters from the sample. People reporting eye problems were not recruited.

3.4. Measures & Operationalization

During experiments, we followed the outlined guidelines by Dunn et al. (2023). The participants sat 60cm from a 24-inch 1920x1080 resolution 60Hz LCD monitor (showing the package visuals). Eye movements were recorded with a Tobii X2-60 eye tracker mounted at the bottom screen. Tobii Pro Studio (version 3.4.8.1238) recorded eye movements and processed the data. Participants were free to move their heads while their eye locations were recorded. The environment was well-lit, with a mixture of natural and artificial light. We used 5-point calibration, which was repeated until good calibration accuracy was achieved. The Tobii I-VT filter was used to determine fixations. A 19% eye-tracker sample loss was observed, with random distribution across participants.

Positive emotion was operationalized using FaceReader 5.1's 'Happy' metric, which identifies AU6 (Cheek Raiser) and AU12 (Lip Corner Puller) to detect genuine smiles, aligning with standard FACS definitions of happiness (Lewinski et al., 2014). Scores were then normalized to each participant's baseline to control for individual expressivity. We used an analytical method to enhance the robustness of findings and calculated an average emotional baseline for each participant based on reactions while viewing the package designs. This baseline is a normalization factor that allows the participant's emotional response to be weighed. So, we control individual differences in emotional expressivity, ensuring that observed emotional changes are attributable to the impact of the package designs rather than variations in individual baselines.

3.5. Experimental Conditions

The experiment consisted of a choice task: firstly, products were shown together on the monitor and then viewed with each package individually for 5 seconds in randomized order (Figure 1).

Participants first viewed all ten package designs simultaneously in a concentric circle layout. This display remained on the screen until participants selected their preferred package by clicking on the mouse. Thereafter, each of the ten designs was shown individually for 5 seconds each; this duration was chosen

to ensure participants could view all elements without extended inspection beyond typical low-involvement decision times.



Figure 1 Experiment design – order of the slides shown to a person, starting with the circle of products on the left and then with each product one by one from left to right

Source: Author's selection of images for the experiment

First, the participants chose their preferred design from 10 packages presented in a concentric circle by clicking the package with the mouse. The location of products in the circle was randomized to rule out location effects on gaze. Packages were placed in a circle, not in lines like on a virtual shelf, to exclude looking in the centre gaze bias.

Second, every package design was shown individually. Before the experiment, we checked the calibration process and package placement. We opted for five seconds, as this was sufficient time to see all the elements and short enough not to wander around the package design after seeing all or most of the elements.

The analysis consisted of 3 parts. Firstly, the average positive emotions for each package were compared to how many times it was selected. Secondly, two conjoint analyses were performed. The emotion-based conjoint analysis, where participants weighed the average positive emotion for the package, is considered as the rating for that package and used as input for the conjoint analysis. Then, the conjoint analysis based on eye-tracking data, where the time to first fixation on a package from the concentric circle (choosing one package) is a rating for packages and input for the conjoint analysis.

From a statistical point of view, the first component is the qualitative comparison between the average positive emotions elicited by the packaging picture and the frequency with which each package was chosen, with no statistical analysis. Further, we have conducted two distinct conjoint analyses, both employing statistical methods. One, an emotion-based conjoint analysis, utilized the average positive emotion associated with each package as a rating. Another eye-tracking-based conjoint analysis employed the time to the first fixation on a package as a rating. For both cases, the models were evaluated using Kendall's tau.

4. RESULTS

Eye-tracking and emotion measurement results were analyzed using the conjoint analysis method in SPSS. The results are given in Table 1. The conjoint analysis revealed Kendall's tau values of 0.714 for the first fixation-based model, 0.357 for the total fixation duration-based model, and 0.5 for the positive emotion-based model. While the first fixation model effectively describes the data, caution should be when interpreting emotions based on the conjoint results. The interpretation does not include the total fixation duration-based model due to its lower Kendall's tau value.

Table 1 First results of positive emotions and package design

Card	Average positive emotion	Number of people who chose the package
1	1.3007	3
10	1.1749	2
3	1.0937	2
9	1.0097	7
4	0.9569	4
2	0.9478	4
8	0.9063	3
7	0.8878	3
5	0.8714	1
6	0.8507	1

Source: Authors' own research results

The most positive emotions-evoking designs all share the script typeface (atypical) and are named (moderate typicality) "Minced meat with carrot." Both pig and carrot illustrations are present in all illustration styles, from realistic (product 1) to cartoon (10 and 9) and graphic (3). The results indicate that positive emotion was not the prevalent choice influencer. The most typical product (6) is the least positive. Products 1 and 10 have moderate typicality and are among the most positive.

The total fixation dwell time aggregates the gaze within each AOI over the entire individual viewing period, showing that designs 1, 9, and 7 received more cumulative attention over 30 seconds than the least viewed designs. While package 1 was the most positive emotion-generating, package 9 was chosen most frequently, and package 7 did not rank among the top choices. Wherein most viewed designs are 1, 9, 7, and 2 with a carrot picture. The least viewed package also features a carrot, showing that the picture-type effect is not direct.

To measure the "happy" emotion, we used FaceReader 5.1 to determine which attributes generated more positive emotions (Table 2).

Table 2 Conjoint analysis results

Attribute	Products name	Emotion-based conjoint			Time to the first fixation-based		
		Attribute	Utility	Std.	Attribute	Utility	Std.
Picture Type	Pig	17,412	-0,020	0,052	19,963	-0,092	0,101
	Carrot		0,020	0,052		0,092	0,101
Picture Style	Photorealistic	34, 192	0,040	0,070	25,037	-0,304	0,135
	Graphic		0,024	0,082		0,303	0,159
	Cartoon-like		-0,063	0,082		0,001	0,159
Text Type	Carrot minced	25,902	-0,098	0,052	18,473	0,264	0,101
	Minced meat		0,098	0,052		-0,264	0,101
Typeface	Serif sans	22,494	-0,052	0,052	36,528	-0,074	0,101
	Script		0,052	0,052		0,074	0,101
(Constant)			0,967	0,055		3,611	0,107

Source: Authors' own research results

In the emotion-based conjoint, picture style generated the most positive emotions (attribute relative importance 34%). Text type (26%) was second for positive emotions. Text style generated less positive emotion (22,5%). Picture type was the least important attribute, contributing only 17,5% positive emotions.

A carrot picture was the most positive in a photorealistic style instead of a graphical or cartoon-like one. This aligns with the literature, as photorealistic pictures are prevalent for minced meat products, and the typical illustration style is positive. Additionally, the carrot is an unusual element and generates more positive emotions.

The name "minced meat with carrot" generates the most positive emotion, being the typical name compared to "carrot minced meat." Text is most positive when written in the script (typeface atypical for categories' visual code).

The noticing time (time to first fixation in Table 2) shows the time it took a person to look at a specific package from the concentric circle (see Figure 1). These first fixation times are used as input for conjoint. The influencing attributes were typeface and picture style, which explained 61% of attention speed (picture and text types were less critical). Packages with a pig illustration were noticed faster; the fastest first fixation was for photorealistic illustration. Packages with "Minced meat with carrot" text were noticed faster, and the text in the serif sans typeface was noticed faster than the script. Most of the packages that participants selected generated positive emotions below the average of the sample (Figure 2).

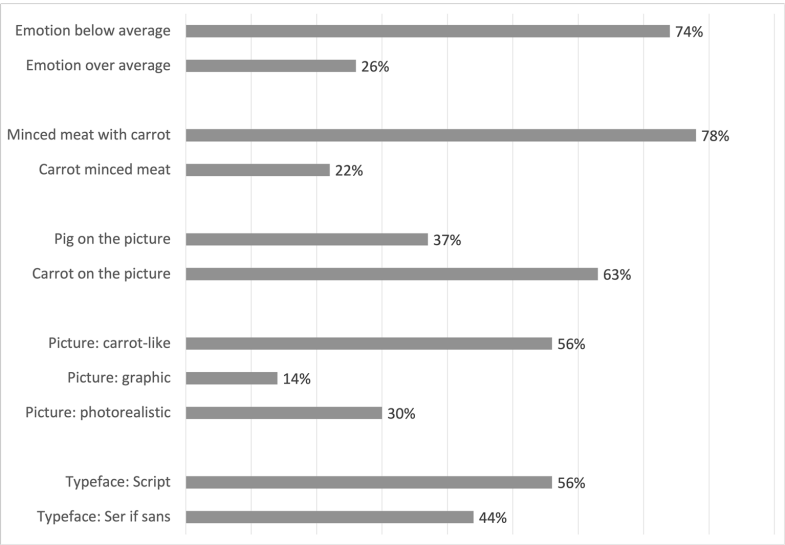


Figure 2 Attributes of selected packages

Source: Authors’ own research results

People preferred packages with a carrot picture and text where minced meat was prominent. The preferred picture style was cartoon-like, and the typeface was script.

5. DISCUSSION

Theoretical implications. The study results are mixed and show that atypicality does not have an apparent effect on consumer behaviour. According to literature (Seva et al., 2011; Schoormans & Robben, 1997; Ooijen et al., 2016), the atypical design should get more attention and be more noticeable to consumers than typical packages with a familiar design. However, our results did not confirm this, aligning with findings that atypical design is ineffective in capturing attention (Smith et al., 2021; Johnson & Lee, 2020). So, packages with a familiar (typical) design were, in most cases, noticed first. The answer to RQ1 is that an atypical package design did not positively influence the attention (time to first fixation). More investigation is needed to validate our results, but atypical package design is not always noticed first.

To RQ2, we can say that a moderate atypicality level of design generates higher positive emotions. The script is emotionally the most positive typeface. This result aligns with studies suggesting script fonts are more cheerful (Williams et al., 2019). Our results confirm the reversed U-shape treatment. Recent studies support

this U-shaped relationship between atypicality and aesthetic preference (Kim & Lennon, 2022). A moderate atypicality level is perceived as the most aesthetical compared to very typical and very atypical designs. Hence, we answer RQ3 that moderate atypicality positively influences choice.

We cannot provide a single answer to RQ4. Results reveal that the picture and text play relatively equal roles in capturing attention. Recent research shows that text and imagery are significant in capturing attention (Brown et al., 2021). In evoking positive emotions and purchase intention, the text dominates slightly over the picture. This is consistent with the findings that text is sometimes more influential than images (Adams & Mathews, 2020). We can partially give a positive answer to RQ5 and state that a package design with an atypical typeface is looked at longer and has a longer mean and total fixation duration than a typical sans serif typeface. It is supported by recent studies (Clark et al., 2021) with similar results.

Managerial implications. The practical implication is that for new products, some familiar elements in design should remain; otherwise, the product could seem radical to consumers, which lowers positive emotions and will be avoided, as Mugge and Dahl (2013) also stated. As seen from the emotion-based conjoint analysis results, the font and the picture style played a vital role in evoking positive emotions. The picture style (photorealistic or cartoon-like) had a different influence on the generation of positive emotions. Test drafts of a new package design are recommended before launching.

These results can be sensitive to product category. Categories with higher or lower purchase involvement can give different results. Also, product categories have their own visual codes and design typicality, influencing how illustration and text affect typicality. However, the level of design typicality influences consumers' preference towards the package and its ability to catch attention and evoke emotion. We found that product typicality influences attention and emotions, and proved that this methodology is valuable in testing new designs in the typicality context.

6. CONCLUSION

Our finding of a reversed-U relationship between design atypicality and positive emotion refines Berlyne's (1970) arousal – complexity model by demonstrating that moderate deviations from category prototypes maximize attention and hedonic response. These results have implications for new product manufacturing. When developing packages, designers should be careful. It is not always that new packages are noticed faster and preferred. This study's results show that people often notice familiar designs first. However, some level of atypicality is needed to generate positive emotions and preferences. The best combination is an atypical picture and a typical product name. Results also show the importance of typefaces and illustration picture graphical styles. These package design attributes should not be underestimated. Therefore, testing package design drafts with different element styles is needed.

While this study provides results for atypical packaging designs attention and emotion, some limitations exist. Although the sample size was small, it was sufficient for the nature of this study. The focus on minced meat packages in Estonia offers directions for research to explore other products or geographical contexts. The 5-second viewing time was chosen to simulate quick decision-making, typical of low-involvement purchases, but longer exposure times could be examined in future research. The calibration accuracy of the Tobii eye-tracker and the emotion measurement via FaceReader were validated, although they may not capture real-world consumer behaviour. These limitations offer avenues for future research.

Additional research is needed to deepen our results, particularly concerning fonts and picture styles in generating emotions and purchasing intentions. Analyzing the effects of package design atypicality, illustrations, and typeface elements might have on retail goods is another way of adding theoretical and managerial implications.

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APPENDIX

Table 1 Orthogonal design

Illustration type	Illustration style	Text	Font	Status	Card number
Carrot	Photorealistic	Minced Meat with Carrot	Script	Design	1
Carrot	Photorealistic	Minced Meat with Carrot	Serif sans	Design	2
Pig	Graphical	Minced Meat with Carrot	Script	Design	3
Pig	Cartoon-like	Minced Meat with Carrot	Serif sans	Design	4
Pig	Photorealistic	Carrot minced meat	Script	Design	5
Carrot	Cartoon-like	Carrot minced meat	Script	Design	6
Carrot	Graphical	Carrot minced meat	Serif sans	Design	7
Pig	Photorealistic	Carrot minced meat	Serif sans	Design	8
Carrot	Cartoon-like	Minced Meat with Carrot	Script	Holdout	9
Pig	Cartoon-like	Minced Meat with Carrot	Script	Holdout	10

Source: Authors' own research

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KAKO ATIPIČNA AMBALAŽA PRIVLAČI POZORNOST I POBUĐUJE EMOCIJE: ISTRAŽIVANJE TEMELJENO NA PRAĆENJU POGLEDA I IZRAZA LICA

Sažetak

Potrošači obično brzo biraju svakodnevne proizvode. Jedan od načina da se privuče pozornost jest razlikovanje od konkurencije korištenjem netipičnim dizajnom teksta, ilustracija ili stila. Cilj je ovog istraživanja utvrditi kako atipičnost dizajna ambalaže utječe na sposobnost ambalaže da privuče pozornost, pobudi pozitivne emocije i utječe na izbor proizvoda. Metodologija se temeljila na praćenju pokreta oka (eye-tracking) kako bi se analizirale reakcije potrošača na različite dizajne ambalaže. Mijenjali su se nazivi proizvoda, stil teksta, ilustracije na ambalaži i grafički stil tih ilustracija. Rezultati pokazuju da ni ambalaže s izrazito tipičnim dizajnom ni one s vrlo atipičnim dizajnom nisu bile najpoželjnije. Umjerena tipičnost pokazala se kao najbolja za privlačenje pozornosti, izazivanje

pozitivnih emocija i utjecaj na izbor. Atipične promjene u dizajnu ne moraju nužno rezultirati većom pozornošću ili preferencijom pri razvoju ambalaže proizvoda. Istraživanje ističe važnost tipografije i grafičkog stila ilustracija. Treba paziti pri odabiru tipografije i ilustracija.

Ključne riječi: praćenje pogleda, vizualni elementi ambalaže, atipičnost, evaluacija ambalaže, donošenje odluka potrošača.

JEL klasifikacija: M31, D87, D91, C91.