DIGITAL TRANSFORMATION AND ADMINISTRATION INNOVATION

Citation: Maghsoudi Rahim Abadi, M., Kimasi, M., & Abedi, E. (2025). Investigating the Influence of Character Presence in Packaging on Visual Attention and Consumer Choice for Hedonic Products Using Eye-Tracking Technology. *Digital Transformation and Administration Innovation,* 3(2), 1-9.

Received: 2025-02-03 Revised: 2025-05-02 Accepted: 2025-05-14 Published: 2025-06-25

Investigating the Influence of Character Presence in Packaging on Visual Attention and Consumer Choice for Hedonic Products Using Eye-Tracking Technology

Mona Maghsoudi Rahim Abadi[1], Masoud Kimasi[2]*, Ehsan Abedi [1]

1. Department of Business Administration, North Tehran Branch, Islamic Azad University, Tehran, Iran
2. Department of Business Administration, University of Tehran, Tehran, Iran

*Correspondence: keimasi@ut.ac.ir

Abstract

This study aims to investigate the impact of character presence on product packaging on the level of visual attention it generates among consumers, addressing the central question: Does the presence of a character on the packaging of hedonic products enhance visual appeal and consequently attract consumer attention, leading to product selection? This research employed a quantitative and experimental methodology with an exploratory approach. To determine the product category as hedonic, a filtering questionnaire was used to identify consumer behavior patterns. The results confirmed the hypothesis that chocolate is categorized as a hedonic product typically associated with unplanned purchases. This segment of the study involved non-random, purposive sampling. Subsequently, to assess the level of visual attention to the character element, a quantitative experiment was conducted using an eye-tracking device. In the final phase, a supplementary quantitative survey-based experiment was carried out to refine the research assumptions based on the previous findings. The sampling in the last two phases followed a non-random, snowball sampling method. In this study, demographic variables were analyzed using frequency and percentage distribution methods. To compare the attractiveness of packaging and consumers' purchase inclination, the Wilcoxon test was employed. The variables examined included time to first fixation, number of fixations, total visit duration, number of visits, and fixation duration. The findings indicate that while the character element in packaging influences consumer attention and selection, the outcomes vary across different packaging metrics. Thus, it cannot be conclusively stated that the presence or absence of a character definitively enhances visual appeal or leads to product selection. Rather, the conclusion must be nuanced: packaging featuring a character, due to its complexity or design details, may require more time to capture consumer attention. In contrast, simpler packaging without a character may draw attention more quickly. Therefore, to maximize immediate consumer engagement, simpler packaging may be more effective. On the other hand, if the goal is to foster deeper interaction with the consumer through packaging, incorporating more detailed designs may be advantageous. Notably, this study underscores the importance of considering environmental factors, individual consumer characteristics, and personal preferences, as these variables significantly influence packaging choices and contribute to more precise findings.

Keywords: Visual attention, Packaging, Eye-tracking system, Hedonic products, Character.

1. Introduction

Packaging is the first impression consumers have of food products, and it plays a decisive role in product selection. When shopping for everyday groceries, consumers often base their purchasing decisions on the specifications and external appearance of the product (Gregor, 2020). According to Rettie and Brewer (2000), packaging has between two to three seconds to persuade a buyer. Therefore, to persuade effectively, a product must stand out among similar products (Ronyastra et al., 2021; Rowena, 2021).

In this context, packaging functions both as an immediate visual stimulus (Christiana et al., 2023) and a message transmitter to consumers (Mehri & Abouei, 2017). Previous research suggests that consumers do not attend to all the information on a package. They selectively ignore some elements while focusing on others (Hendijani et al., 2023; Marco et al., 2020). The choice to focus on or ignore certain packaging elements depends largely on the purpose of the purchase—whether driven by hedonic enjoyment or utilitarian value (Kevin Lane, 2003). A key question arises: does a product fail to attract consumer attention, or is the consumer simply disinterested? This question cannot be answered accurately without eye-tracking analysis (Gregor, 2020).

Individuals differ in their aesthetic preferences, but they tend to favor what is familiar. Many brand owners aim to develop a unique identity that establishes this familiarity with consumers (Valerie et al., 2021). Today, using a character is a strategy to imbue products and services with "personalities," hoping that consumers will connect with them and become loyal followers. As a result, new characters constantly emerge, and even older ones are modernized to attract new audiences (Rowena, 2021). The incorporation of characters and animations in packaging design offers designers innovative opportunities (Xueer et al., 2020). The trend of assigning personalities to modern products to appeal to specific age demographics has gained momentum. Consumers relate emotionally to characters they like and find them aesthetically pleasing. Internal and external factors in the formation of these images influence the level of user engagement. The more satisfaction consumers derive from a character, the deeper their engagement and the stronger their desire to own a product associated with it (Christos et al., 2022). For young adults, animated and cartoon characters may evoke nostalgia for childhood simplicity. Hence, using animation elements in product packaging aligns with young consumers' preferences (Xueer et al., 2020).

A core principle of visual marketing is: "What is not seen, is not bought." If consumers do not notice a product, they are unlikely to purchase it. The consumer decision-making process is heavily influenced by visual search behaviors, and extensive research supports this claim. Since consumer choice is highly dependent on visual input, attention acts as a filter through which information is selected and interpreted. As such, visual attention is crucial to this process (Hugo Guyader et al., 2016). Historical sales data show that, on average, about half of products are noticed at least once, while the other half may go completely unnoticed—potentially due to visual neglect or general consumer disinterest. Although visual prominence and similarity can influence attention in product selection contexts (Werle et al., 2022), the fact that 68% of purchases are unplanned means retailers must enhance the effectiveness of point-of-sale marketing. Effective displays and promotional materials can draw attention and influence purchasing decisions, potentially reducing the weight of price in consumers' choices. Success at the point of sale requires capturing consumer attention. "If you want to know what people focus on, follow what they are searching for" (Hashemi et al., 2021; Hendijani et al., 2023).

In recent years, shopper marketing has gained renewed interest. Retail experts often emphasize experiential marketing, and a related theoretical concept is sensory marketing (Jens & Carl-Philip, 2024). Over recent decades, eye-tracking research has become a dominant method due to its ability to overcome the limitations of traditional observation techniques (Grewal et al., 2022). Most retail and marketing studies using eye-tracking are conducted in controlled, computer-based environments and are often published in general marketing literature (Jens & Carl-Philip, 2024). These studies are well-suited for understanding and optimizing specific marketing elements and are also applied to packaging design research (Valerie et al., 2021).

The human eye, as a sensory organ within the visual and cognitive system, indicates visual attention through gaze fixation. Although attention does not always accompany gaze movement, gaze movement cannot occur without attention (Sabri et al., 2020; Simmonds & Spence, 2017). Therefore, gaze behavior serves as a reliable indicator for measuring visual attention and information acquisition. Unconscious responses regulated by the brain's autonomic nervous system are partially driven by gaze

and areas of visual focus. Modern eye-tracking technology uses a combination of computer screens and infrared cameras to record pupil and corneal reflections, making it a reliable tool for tracking gaze movements (Christiana et al., 2023). The resulting data are more dependable than subjective reports, and gaze behavior, which is difficult to control consciously, offers direct evidence of attention. Thus, eye-tracking overcomes the limitations of subjective methods such as interviews or focus groups and represents a significant advancement in objective data collection in marketing research (Gregor, 2020).

Extensive studies have used this technology to understand consumer purchasing behavior. For example, Gregor (2020) examined brand elements, text, shapes, and images using eye-tracking systems. Participants focused more on product names and brand names when presented in larger fonts and spent more time viewing images than reading text (Gregor, 2020). Similarly, Marco et al. (2020) analyzed pre-production olive oil labels using eye-tracking. They tested two packaging formats with three label types. Consumers perceived transparent packaging as indicative of quality, and images featuring hands using the product or slogans like “You are the winner” attracted significant attention (Marco et al., 2020).

In another study the impact of symmetric versus asymmetric layouts on the front of food packaging was investigated. A laboratory experiment using eye-tracking revealed that symmetry affects visual attention by increasing overall focus on the front of the package and enhancing the appeal of specific areas (Sophie et al., 2020). In another study, respondents viewed 20 different biscuit packages, and their visual responses were recorded. Popular brands received more attention, and the color orange attracted more attention than others. Packaging elements like company name, brand, and product image were rated as most important and should be prominently displayed (Ronyastra et al., 2021). Xueer et al. (2020) studied whether transparent packaging windows (as opposed to graphic depictions of food or non-food content) influenced consumer attention and purchase intention. For canned fruit, transparent packaging led to quicker first fixations. For nuts, both transparent and graphic window designs increased purchase intentions compared to the baseline, with packaging appeal serving as a key mediator (Xueer et al., 2020).

In conclusion, multiple packaging elements influence visual attention and consumer perception, including product images, color, shape, branding, textual claims, and icons (Simmonds & Spence, 2017). A wide array of studies has examined these elements from different angles. Packaging design has evolved toward modern aesthetics, and character use across new packaging designs influences how consumers evaluate and judge products. This exploratory study seeks to answer whether the use of characters is exclusive to children's products or can attract other target groups, and whether characters beyond traditional human or animal forms can act as brand symbols to enhance visual attention—a factor not addressed in previous research. To explore this question and better understand the consumer decision-making process, deeper investigation is necessary. Hence, the core research question of this study is: Does the use of character elements on packaging for hedonic products influence visual attention, and does its attractiveness affect consumer choice? To address this, two versions of the same product—with and without character elements—were assessed. Chocolate was selected as the representative hedonic product.

2. Methods and Materials

This study is applied in nature, as its findings have direct implications for companies producing food products. Given the type of data and its implementation, the adopted method in this research is descriptive-survey and causal in type. The researcher describes and interprets what exists, focusing on current conditions, existing relationships, prevailing beliefs, ongoing processes, observable outcomes, or emerging trends. Although its focus is primarily on the present, it also examines past events and effects that relate to current conditions. Additionally, it is considered a survey study because it involves sampling and generalizing findings from a smaller sample to a larger population. Since the study aims to examine the effect of an independent variable on a dependent variable, it is classified as causal.

The research was conducted in three stages. In the first stage, library and survey methods were used. Some data were collected from online sources and previous research, while others were gathered through interviews and questionnaires administered to designers and marketing managers. Initially, through a literature review and analysis of existing research gaps, nine designers and managers in the food industry were selected using non-random sampling and invited to participate in interviews. The purpose was to identify impactful packaging elements based on existing industry concerns. The interviews continued until theoretical saturation was reached.

The character element in packaging—an aspect not addressed in previous research but increasingly popular in the modern food industry—was selected for further study. To accurately categorize the product as hedonic based on consumer purchasing patterns, a consumption pattern evaluation questionnaire consisting of five statements was used. Participants responded using a five-point Likert scale, and the total scores were calculated. Participants were the same as those in the first stage. After completing the interviews, they were asked to respond to the questionnaire via a shared link. The assumption was that chocolate qualifies as a hedonic product, and the results confirmed this categorization.

Table 1. Questionnaire Results for Evaluating Hedonic Product Characteristics (Chocolate)

Item	Mean
When purchasing the product, price and quality are more important than packaging appearance.	4.4
Satisfaction during use is more important than mere ownership.	4.0
When purchasing, taste and quality matter more than packaging beauty.	4.3
The product is usually pre-planned when going shopping.	4.2
When deciding to buy this product, you consider other options on the shelf.	3.9

The average response score of 4.4 for chocolate confirmed its classification as a hedonic product. Once the product and packaging were determined, a specific design focused on the character element was prepared, excluding other market-based packaging features, for the experimental procedure.

In the second stage, identified variables were quantitatively analyzed using an eye-tracking system. The research paradigm was positivist, and the method used was experimental in a laboratory setting. After identifying and modeling the character element in packaging—considering two conditions: presence and absence of character—two utilitarian products (pasta and olive oil) were selected. Packaging designs for each condition were prepared for experimental evaluation. To measure visual attention to packaging elements, Tobii eye-tracking devices and Tobii Pro Lab software were used.

Most neuro-marketing studies in marketing and advertising include 15 to 50 samples in lab settings. In this study, 60 participants were selected due to the experimental nature and participant constraints. Initially, participants completed a screening questionnaire through telephone interviews. Since the test was conducted at a university, participants were selected with varied age ranges, education levels, and preferences related to the products.

Participants then attended a lab individually, where they viewed the prepared product images on a computer equipped with Tobii Studio. After the experiment, they completed another questionnaire containing colored images of the tested products and two questions assessing visual appeal and purchase intention. They were asked to rate the two packaging models for each product. This step was designed to complement the previous experiment. The entire process was repeated for all 60 participants. The data collected through eye-tracking and the subsequent questionnaire were analyzed together.

Given the relatively large population, participant criteria included individuals who influenced or made decisions about food purchases. University-educated professionals and students were invited to participate. Non-random and snowball sampling were used in the last two stages. Since no reliable gender-based consumption data for the selected products were available, efforts were made to include an equal number of men and women. Regarding social class, participants were selected from the upper-middle social class (grades A, B, and C), as recommended in related studies.

For analyzing demographic variables, percentage and frequency distribution methods were employed. To examine and compare consumer perceptions of packaging attractiveness and purchase intention, the Wilcoxon test was used.

3. Findings and Results

Regarding the gender distribution of participants, 25 were female (41.7%) and 35 were male (58.3%). In terms of educational background, 41 participants held a bachelor's degree (68.3%), while 19 held a master's degree (31.7%). Concerning occupational distribution, the largest group consisted of students, with 45 participants (75%). Additionally, there were 2 participants (3.3%) who were self-employed, 2 (3.3%) digital marketing specialists, 2 (3.3%) marketing specialists, 8 (13.3%) employees, and 1 participant (1.7%) who was a marketing manager. In terms of age distribution, 22 participants (36.7%) were aged 18–21, 23 participants (38.3%) were aged 22–24, and 15 participants (25%) were aged 25–28. This categorization reflects the age composition of the study sample.

In this phase of the study, participants were instructed to sit in front of a computer screen equipped with an eye-tracking system and view a sequence of displayed images. The objective was to evaluate and record the position of the pupil at specific

time intervals. The eye-tracker used in this study was a stationary Tobii device with a sampling rate of 30 Hz, suitable for laboratory conditions with minimal audio and lighting interference. Tobii Pro Lab software was employed for eye calibration, test design, and statistical analysis. Product images were shown in randomized order to avoid any mental bias among participants. Each participant viewed 16 images, and their eye movements were recorded.

The products were designed in two packaging variations—one with and one without the character element—and shown to participants.

Figure 1. Chocolate Product Packaging Designs

The variables examined in this study included time to first fixation, number of fixations, total visit duration, number of visits, and duration of fixations. Common analytical tools in eye-tracking studies include attention maps, such as heatmaps. Heatmaps highlight areas of an image processed by participants, where the more intense the warm colors (e.g., red), the greater the visual processing and focus in that area.

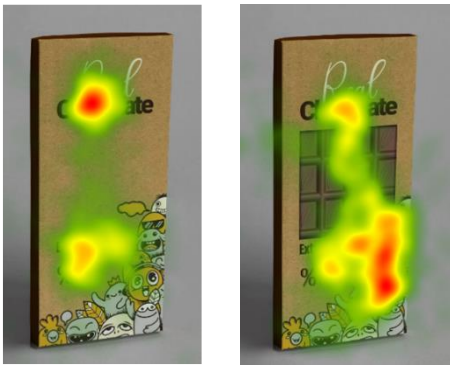

Figure 2. Heatmaps Showing Visual Processing for the Two Packaging Conditions

At this stage, the character element in the packaging design was specifically processed by participants, while all other elements were kept constant. Based on the intensity of warm colors in the heatmaps, the highest levels of attention, processing, and gaze fixation were concentrated on the packaging.

Overall, based on the findings from both the eye-tracking system and the follow-up questionnaire completed by participants, two conditions—presence and absence of character—were assessed for hedonic products. After the experiment, participants were asked to respond to a questionnaire evaluating the visual appeal and purchase intention of the packaging. The questionnaire included colored images shown during the experiment and two questions assessing visual appeal and purchase intention. The combined results from both stages were analyzed using the Wilcoxon signed-rank test, leading to the following conclusions:

The Wilcoxon test results indicated no significant difference in mean packaging attractiveness between the two chocolate packaging designs (test statistic = 0.000, p = 1.000). Both character and non-character packaging had a mean attractiveness score of 0.07, with a standard deviation of 0.252. These findings suggest that adding a character to the chocolate packaging did not significantly enhance its visual appeal. From a visual attractiveness perspective, both packaging types were similarly evaluated by consumers.

Table 2. Comparison of Reported Packaging Attractiveness for Chocolate Products with Different Packaging Designs

Product Type	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	0.07	0.252	0.000	1.000
Packaging without Character	0.07	0.252		

The Wilcoxon test results also showed no significant difference in the mean purchase intention between the two packaging types (test statistic = -0.378, p = 0.705). Packaging with a character had a mean purchase intention of 0.05 (SD = 0.220), while packaging without a character had a slightly higher mean of 0.07 (SD = 0.252), yet the difference was not statistically significant. These results suggest that whether or not a character is present, packaging design has no substantial impact on consumers' willingness to purchase. It implies that other factors—such as product quality, price, or individual preferences—may play a more decisive role in influencing purchase intentions.

Table 3. Comparison of Reported Purchase Intention for Chocolate Products with Different Packaging Designs

Product Type	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	0.05	0.220	-0.378	0.705
Packaging without Character	0.07	0.252		

The Wilcoxon test showed a significant difference in the mean time to first fixation for the different packaging conditions (test statistic = -3.071, p = 0.002). The packaging with a character required a longer time to capture initial attention (mean = 0.232, SD = 0.486), compared to the non-character packaging (mean = 0.083, SD = 0.122). These results indicate that packaging with a character may require more time to attract visual attention due to design complexity or detail. In contrast, simpler packaging designs attract consumer attention more quickly. These findings highlight the importance of designing packaging that can efficiently capture customer attention in a short time frame.

Table 4. Comparison of Time to First Fixation for Chocolate Product with Different Packaging Designs

Chocolate Product	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	0.232	0.486	-3.071	0.002
Packaging without Character	0.083	0.122		

The Wilcoxon test results indicate a significant difference in the mean time to first fixation between the two chocolate packaging types (test statistic = -3.071, p = 0.002). Packaging with a character had a longer mean time to first fixation (0.232 seconds) compared to the packaging without a character (0.083 seconds), suggesting that the former requires more time to capture attention, possibly due to increased complexity or design details. Simpler packaging, on the other hand, attracted attention more quickly.

Table 5. Comparison of Fixation Duration for Chocolate Product with Different Packaging Designs

Chocolate Product	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	0.285	0.069	-1.876	0.061
Packaging without Character	0.308	0.084		

The Wilcoxon test results show no statistically significant difference in mean fixation duration between the packaging types (test statistic = -1.876, p = 0.061). The fixation duration for packaging with a character (mean = 0.285 seconds) and without a character (mean = 0.308 seconds) did not significantly differ. This implies that visual design elements—whether involving characters or not—do not substantially impact how long consumers focus on a single point, and other factors such as informational content or overall appeal may play a more important role.

Table 6. Comparison of Fixation Count for Chocolate Product with Different Packaging Designs

Chocolate Product	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	15.55	3.280	-0.967	0.333
Packaging without Character	16.02	3.793		

The Wilcoxon test results reveal no significant difference in the mean fixation count between the two packaging types (test statistic = -0.967, p = 0.333). The packaging with a character recorded a mean fixation count of 15.55, while the one without a character had a slightly higher mean of 16.02. These findings suggest that the number of times consumers focused on different

areas of the packaging is not significantly influenced by the presence or absence of a character and may instead be affected by external conditions or individual consumer characteristics.

Table 7. Comparison of Visit Duration for Chocolate Product with Different Packaging Designs

Chocolate Product	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	3.965	1.441	-3.341	<0.001
Packaging without Character	4.608	0.965		

The Wilcoxon test shows a statistically significant difference in visit duration between the packaging types (test statistic = -3.341, $p < 0.001$). Packaging with a character had a shorter mean visit duration (3.965 seconds) compared to the packaging without a character (4.608 seconds). This indicates that simpler packaging designs may sustain consumer attention for a longer period, while more complex packaging (with characters) may result in shorter viewing times, possibly due to reduced visual clarity or design overload.

Table 8. Comparison of Visit Count for Chocolate Product with Different Packaging Designs

Chocolate Product	Mean	Standard Deviation	Test Statistic	Significance
Packaging with Character	1.35	0.606	-2.744	0.006
Packaging without Character	1.12	0.324		

The Wilcoxon test reveals a significant difference in the mean visit count (test statistic = -2.744, $p = 0.006$). Packaging with a character showed a higher visit count (mean = 1.35) compared to packaging without a character (mean = 1.12). These results suggest that character-based packaging may prompt consumers to revisit the packaging more often, potentially due to its distinctive or engaging design. Conversely, non-character packaging may appear less engaging, resulting in fewer revisits. These insights can inform packaging strategies aiming to increase consumer interaction.

4. Discussion and Conclusion

In line with the theoretical and practical framework reviewed in the literature, this study successfully addressed a significant gap using a scientifically rigorous approach through eye-tracking technology. The research answered questions relevant to industry stakeholders—particularly within the food sector—and aimed to enhance the effectiveness of packaging design in capturing consumer attention and ultimately influencing purchase decisions. This study investigated the inclusion of a character element in the packaging of hedonic product categories, assessing both conditions—presence and absence of the character. The methodology was quantitative and experimental, utilizing eye-tracking systems. The research was conducted in three stages. In the first stage, interviews with nine professionals from the food industry were conducted to identify the most frequently used elements in contemporary packaging design. Based on existing research gaps, the character element was selected as the key variable.

To select the focal product, a consumer behavior questionnaire modeled after Kim (2009) was employed to differentiate between utilitarian and hedonic products. Chocolate was identified as a hedonic product. In the subsequent stage, product images designed specifically to test the character element were evaluated in an eye-tracking experiment (Kim, 2009). Participants viewed these images on a computer screen equipped with a Tobii eye-tracking system, and their pupil movements were recorded and analyzed. Following the experiment, a questionnaire featuring the same colored images was administered to assess participants' perceptions of packaging attractiveness and their purchase intention. The results were analyzed using the Wilcoxon test, and the key eye-tracking variables included time to first fixation, fixation count, visit duration, visit count, and fixation duration.

The findings showed that packaging with and without a character differed significantly in some metrics, while in others, no substantial differences were observed. Attractiveness was rated equally for both packaging types with a mean score of 0.07 and a standard deviation of 0.252, showing no significant difference (test statistic = 0.000, $p = 1.000$). Similarly, purchase intention showed no notable difference: the character packaging had a mean of 0.05, and the non-character packaging had a mean of 0.07 (test statistic = -0.378, $p = 0.705$). However, a significant difference was found for the time to first fixation: character packaging required 0.232 seconds on average versus 0.083 seconds for non-character packaging (test statistic = -3.071, $p = 0.002$). A significant difference also emerged for visit duration: the mean for character packaging was 3.965 seconds, while for

non-character packaging it was 4.608 seconds (test statistic = -3.341, $p < 0.001$). No significant differences were found in fixation duration or fixation count. Fixation duration averaged 0.285 seconds for character packaging and 0.308 seconds for non-character packaging (test statistic = -1.876, $p = 0.061$). Fixation count averaged 15.55 for character packaging and 16.02 for non-character packaging (test statistic = -0.967, $p = 0.333$). A significant difference was observed in visit count: the character packaging had a mean of 1.35 compared to 1.12 for the non-character packaging (test statistic = -2.744, $p = 0.006$).

The combined results from the eye-tracking experiment and follow-up questionnaire suggest that although certain eye-tracking metrics—such as time to first fixation and visit count—showed statistically significant differences favoring character packaging, these differences are not definitive indicators of higher attractiveness. Even where differences exist, other factors may play more influential roles in shaping consumer decisions. Thus, a relative conclusion can be drawn: character packaging, due to its complexity or design intricacies, may require more time to attract consumer attention. Conversely, simpler packaging without characters tends to capture attention more rapidly. Therefore, to increase immediate visual impact, simpler designs are recommended. On the other hand, if the goal is to foster deeper interaction with consumers through packaging, more detailed and character-driven designs can be beneficial. An important consideration emerging from this study is the role of environmental factors, individual consumer characteristics, and personal preferences, all of which can significantly affect packaging selection and produce more accurate insights.

Moreover, this study addresses a theoretical gap in the literature that typically associates character-based packaging with children's products. The findings demonstrate that character elements can enhance product appeal and influence purchase decisions regardless of the target demographic. Incorporating characters into packaging and long-term brand campaigns can attract more customers and expand market share, as characters evoke emotional responses and help establish lasting brand relationships. Character use also aids in differentiating packaging from competitors. In other words, when the product type and target audience are properly considered, character elements can make packaging more appealing and distinct, thereby increasing the likelihood of product selection. Successful brands in today's competitive and diverse markets should pursue innovation in packaging design to gain a competitive edge. Ultimately, attention to packaging elements—particularly character use and transparency—can significantly support brand differentiation.

This study faced several limitations, including a restricted sample size, limited product selection, a narrow age range of participants, and a general lack of domestic studies examining packaging influences using eye-tracking technology. Therefore, future research is recommended to include more targeted samples aligned with specific consumer groups. Additionally, while this study held other packaging elements constant to isolate the two variables under investigation, future research should explore other packaging components using eye-tracking methods to produce more comprehensive conclusions. For products such as olive oil and others with similar packaging characteristics (e.g., bottles and glass containers), a more detailed analysis is warranted. It is also suggested that future studies examine packaging shape and labeling in tandem for such product categories.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

Authors thank all who helped us through this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

According to the authors, this article has no financial support.

References

Christiana, C., Edim Eka, J., Jerome Inemesit, E., & Inyang Bassey, I. (2023). PACKAGING ATTRIBUTES AND CONSUMERS' PATRONAGE OF MILK PRODUCTS. *African Journal of Economics and Sustainable Development*. https://www.researchgate.net/publication/373653760_Packaging_Attributes_and_Consumers'_Patronage_of_Milk_Products

Christos, P., Anastassios, S., & Despina, M. (2022). Character Strengths as a Predictor of AdultFriendship Quality and Satisfaction: Implications for Psychological Interventions. https://doi.org/10.46853/001c.57557

Gregor, F. (2020). PACKAGING DESIGN AND TESTING BY EYE TRACKING. https://doi.org/10.24867/GRID-2020-p38

Grewal, Carl-Philip, A., & Jens, N. (2022). The Impact of In-Store Inspirational (vs. Deal-Oriented) Communication on Spending: The Importance of Activating Consumption Goal Completion. https://doi.org/10.1177/00222437221149508

Hashemi, S. R., Mashbaki Esfahani, A., Kordnaeij, A., & Khodadad Hosseini, S. H. (2021). Modeling Diversification Strategy in Iranian Private Multibusiness Companies. *Business Management*, *13*(1), 56-42. https://jibm.ut.ac.ir/article_82016.html?lang=en

Hendijani, R., Molla, F., & Kimasi, M. (2023). The Impact of Label Placement on Visual Attention of Consumers in Eco-Friendly Product Packaging. *Journal of New Marketing Research*, *4*. https://nmrj.ui.ac.ir/article_28279.html

Hugo Guyader, n., Mikael, O., & Lars, W. (2016). You can't buy what you can't see: Retailer practices to increase the green premium. https://www.researchgate.net/publication/307997236_You_can't_buy_what_you_can't_see_Retailer_practices_to_increase_the_green_premium

Jens, N., & Carl-Philip, A. (2024). Utilising eye-tracking data in retailing field research: A practical guide. *Journal of Retailing*. https://doi.org/10.1016/j.jretai.2024.02.005

Kevin Lane, K. (2003). Brand Synthesis: The Multidimensionality of Brand Knowledge. https://doi.org/10.1086/346254

Kim, J. (2009). The effect of the Ad with Art image on the Consumers' Response. *Research of Advertisement*, *13*(1), 97-122. https://www.researchgate.net/publication/349033103_The_Effect_of_Ad_Content_and_Ad_Lengthon_Consumer_Response_towards_Online_Video_Advertisement

Marco, F., Antonella, R., & Monica Rosa, L. (2020). Consumer Preferences for New Products: Eye Tracking. Experiment on Labels and Packaging for Olive Oil Based Dressing. https://foods_2020.sciforum.net/

Mehri, M., & Abouei, M. H. (2017). Investigating Different Aspects of Packaging and its Impact on Sales of Industrial Products. 2nd International Congress on Empowering Society in Management, Economics, Entrepreneurship, and Cultural Engineering. https://civilica.com/doc/638584/

Ronyastra, I. M., Kusumo, A. H., Hartono, M., & Tantoisworo, E. S. (2021). Designing sweet biscuits packaging by considering the level of attractiveness based on eye tracking data. https://doi.org/10.1088/1757-899X/1072/1/012053

Rowena, C. (2021). Brand Personality and the Role of the Modern Mascot. https://thedieline.com/brand-personality-and-the-role-of-the-modern-mascot/

Sabri, O., Doan, H. V., Malek, F., & Bachouche, H. (2020). When is transparent packaging beneficial? *international journal ofretail & distribution management*. https://doi.org/10.1108/IJRDM-03-2019-0097

Simmonds, G., & Spence, C. (2017). Thinking inside the box: how seeing products on, or through, the packaging influences consumer perceptions and purchase behaviour. *Food Qual Prefer*, *62*, 340-351. https://doi.org/10.1016/j.foodqual.2016.11.010

Sophie, L.-B., Arnaud Bigoin, G., & Olivier, D. (2020). Front of pack symmetry influences visual attention. *Journal of Retailing and Consumer Services*. https://doi.org/10.1016/j.jretconser.2019.102000

Valerie, H.-N., Hanum Putri, H., Stephanie, A., & Annemarie, O. (2021). How cartoon characters and claims influence children's attitude towards a snack vegetable - An explorative cross-cultural comparison between Indonesia and Denmark. https://doi.org/10.1016/j.foodqual.2020.104031

Werle, Amanda Pruski, Y., & Perrine, N. (2022). When Detailed Information Works Better: Comparison of Three- and Five-Color/Letter Front-of-Package Nutrition Labels. *Journal of Public Policy & Marketing*. https://doi.org/10.1177/07439156211061289

Xueer, M., Xiangling, Z., & Guojie, M. (2020). Transparent Windows on Food Packaging Do Not Always Capture Attention and Increase Purchase Intention. https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2020.593690/full