ENCHANCING POINT OF SALE MATERIALS FOR CONSUMER ENGAGEMENT: A NEUROMARKETING APPROACH

POBOLJŠANJE PROMOTIVNIH MATERIJALA NA PRODAJNOM MJESTU ZA ANGAŽMAN POTROŠAČA: NEUROMARKETINŠKI PRISTUP

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Abstract

Purpose – In today's retail environment, shopping is a multi-sensory experience, making it crucial to understand how consumers perceive retail spaces. Retailers can influence consumers' purchasing decisions by manipulating sensory stimuli. Thus, creating effective advertising materials that enhance shopping intent is vital for both manufacturers and retailers.

Design/Methodology/Approach – This study employed electroencephalography (EEG) to measure unconscious responses to visual marketing stimuli. We assessed emotional valence through prefrontal alpha asymmetry, attention via the alpha/beta activation ratio in the occipital lobe, and cognitive load through theta/beta and alpha activation in the parietal lobe.

Findings and Implications – Our findings indicate that for static advertisements (e.g., posters, floor stickers, wobblers), the most engaging combination of elements includes a headline, a person's photo, an aesthetically pleasing food image, product packaging, and supporting text. This contradicts prior research suggesting that ads

Sažetak

Svrha U današnjem maloprodajnom okruženju kupovina je osjetilno iskustvo zbog čega je presudno razumjeti kako potrošači percipiraju maloprodajne prostore. Trgovci na malo mogu utjecati na kupovne odluke potrošača manipuliranjem osjetilnim podražajima. Stoga je stvaranje učinkovitih promotivnih materijala koji pojačavaju namjeru kupovine ključno i za proizvođače i za trgovce na malo.

Metodološki pristup U ovoj je studiji korištena elektroencefalografija (u daljnjem tekstu EEG) za mjerenje nesvjesnih odgovora na vizualne marketinške podražaje. Procijenili smo emocionalnu valenciju putem prefrontalne alfa asimetrije, pažnju putem omjera alfa/beta aktivacije u okcipitalnom režnju te kognitivno opterećenje putem theta/beta i alfa aktivacije u parijetalnom režnju.

Rezultati i implikacije Naši rezultati pokazuju da za statične oglase (npr. plakate, podne naljepnice, označivače) najprivlačnija kombinacija elemenata uključuje naslov, fotografiju osobe, estetski privlačnu fotografiju hrane, ambalažu proizvoda i popratni tekst. To je u suprotnosti

with minimal text and a sleek design have a greater impact. Additionally, promotional pricing displayed in bold had a notable effect on participants.

Limitations – The study adhered to GDPR standards by anonymizing data and using averaged metrics. However, it was conducted in an artificial setting, which may not fully reflect real retail environments. Additionally, the small sample size of 30 participants limits the generalizability of the findings. Technical challenges, such as those associated with EEG usage and participant selection criteria, were effectively addressed.

Originality – This research study stands out by integrating EEG to objectively measure unconscious shopper responses, as opposed to traditional self-reported data. It identifies specific advertisement elements that effectively increase consumer engagement, offering valuable insights into the ways in which to optimize advertising strategies to boost shopper engagement and purchasing intent.

Keywords: neuromarketing, EEG, advertising, retail space, consumer engagement

s prethodnim istraživanjima koja navode da oglasi s minimalnim tekstom i elegantnim dizajnom imaju veći učinak. Dodatno, promotivne cijene podebljano prikazane imale su značajan učinak na sudionike.

Ograničenja Istraživanje se pridržavalo GDPR standarda anonimiziranjem podataka i korištenjem prosječnih metrika. Međutim, provedeno je u umjetnom okruženju, koje možda ne odražava u potpunosti stvarna maloprodajna okruženja. Dodatno, mali uzorak od 30 sudionika ograničava generalizaciju nalaza. Tehnički izazovi, poput onih povezanih s korištenjem EEG-a i kriterijima odabira sudionika, učinkovito su riješeni.

Doprinos Istraživanje se ističe integracijom EEG-a za objektivno mjerenje nesvjesnih reakcija kupaca, za razliku od tradicionalnih podataka dobivenih samoprocjenom. Identificira specifične elemente oglašavanja koji učinkovito povećavaju angažman potrošača nudeći vrijedne uvide za optimizaciju strategija oglašavanja radi poticanja angažmana kupaca i namjere kupnje.

Ključne riječi: neuromarketing, EEG, oglašavanje, maloprodajni prostor, angažman potrošača

1. INTRODUCTION

For better understanding of consumer behavior, neuromarketing combines marketing concepts with neuroscience. Neuromarketing provides objective insights through brain activity, while traditional marketing techniques mostly rely on self-reported data, which might be biased. EEG technology, for example, enables researchers to evaluate emotional engagement and cognitive load, providing useful information on consumer preferences and decision-making processes (Lee et al., 2007; Hubert & Kenning, 2008; Aldayel et al., 2020; Cortes et al. 2021; Dadebayev et al. 2022; Kaheh et al. 2021; Moon et al., 2013; Pan et. al, 2013; Sung et al., 2019; Yfantidou et el., 2022; Zhu et al., 2022).

Neuromarketing has various definitions in the literature (e.g., Collins English Dictionary, n.d.; Garcia & Saad, 2008; Hubert & Kenning, 2008; Javor et al., 2013; Lee et al., 2007; Lim, 2018; Nemorin & Gandy, 2017; Senior & Lee, 2008; Slijepčević et al., 2019; Smidts, 2002; Dos Santos & Calabuig Moreno, 2018). Over the last two decades, these have been slightly modified, supplemented, or upgraded, but all these definitions share a common ground. They focus on insight into consumers' unconscious responses and their behavior and decision-making through the prism of the brain (Cherubino et al., 2019; Varan et al., 2015). We have defined neuromarketing as an interdisciplinary and non-clinical scientific research field that developed at the intersection of neuroscience, marketing, economy, and psychology (Kenning & Plassmann, 2005; Lindstrom, 2010; Mansor & Isa, 2020; Nikolitsch et al., 2023; Sai Kiran & Prabhakar, 2022; Yadava et a 2017), trying to understand the biological source of the consumer behavior and their buying decisions (Cherubino et al., 2019; Trimble, 2017; Wästlund et al., 2018; Golnar-Nik et al. 2019; Guo et al., 2018). It studies the consumers' brain activities, which allows a better understanding of their cognitive and emotional responses to marketing stimuli (Lee et al., 2007; Rumpf et al., 2020; Suhaimi et al., 2020; Simmonds et al., 2020). Within the context of marketing studies, the term marketing stimuli is used as a synonym for different marketing elements (e.g., a radio ad, a TV ad, a printed ad, product tasting, price), which the test subjects perceive with different senses (sight, hearing, smell, taste, touch) and respond to them. Their unconscious response and recognition of accelerators of their behavior and decision-making represent the essence of neuromarketing measures (Yoon et al., 2006; Zhu et al., 2022; Telpaz et al., 2015; Hakim & Levy, 2019; Hakim et al., 2018), which we perform with neuromarketing methods and techniques. This research study is concerned exclusively with static advertisements, with the objective of conducting a comprehensive analysis of their individual design elements and their impact on consumer engagement.

The present work extends previous neuromarketing research, like that of Pozharliev et al. (2017) and Khushaba et al. (2013), which emphasized the importance of visual and emotional stimuli on consumer behavior. This study enhances the existing body of information by concentrating on static advertisements and highlighting the effects of promotional price and design combinations on cognitive and emotional responses. It is aimed at discovering the design features of static advertisements that most effectively capture consumer attention, evoke emotional connections, and facilitate cognitive processing, thereby addressing the existing gaps in understanding their effectiveness. Furthermore, the study analyzes the influence of promotional price on consumer engagement. While previous research mostly focused on dynamic advertisements, static formats have garnered minimal scrutiny. This study seeks to improve the comprehension of how design components in static advertisements provoke emotional and cognitive responses through a thorough investigation. This study is guided by the subsequent research questions:

- Which design features of static commercials most effectively capture consumer attention, evoke emotional engagement, and facilitate cognitive processing?

- What impact does promotional pricing have on consumer engagement with static advertisements?

2. METHODOLOGY

In collaboration with the Slovenian research company NeuroM, we utilized EEG technology to measure unconscious responses to visual marketing stimuli. EEG was selected for its capacity to record unconscious emotional and cognitive reactions, providing a more sophisticated comprehension of consumer behavior than conventional self-reported techniques. This methodology enables researchers to quantitatively assess the impact of particular advertisement components on attention, emotional involvement, and cognitive processing. Emotional responses were derived from EEG signals recorded in the frontal lobe, attention was assessed through brainwave activity in the occipital lobe, and cognitive load was evaluated based on patterns observed in the parietal lobe. By focusing exclusively on static advertisements, this study enabled a detailed examination of specific design elements—such as headlines, graphics, and promotional pricing—that directly influence consumer attention, emotional engagement, and cognitive load.

2.1. Sample

The study sample included 30 participants (15 men and 15 women) representing the general population across all age groups. The working population was divided into two age subgroups: the first group included individuals aged 18-35 (in education or at the start of their professional career), and the second group included individuals with the highest economic potential and income (36-56). Additionally, we included the third age group of individuals (older than 55 years) nearing the end of their professional careers and young retirees. The three age groups were distinguished to cover participants across various life and career stages comprehensively. The test subjects were re-cruited via Valicon's panel, which had over ten thousand candidates. Before testing, the selected candidates received written instructions to have clean hair, not drink coffee or alcohol, and not to consume psychoactive substances at least one day before data collection. The entire procedure was described in detail to the test subjects, including the equipment used and how to behave during the experiment. It was important for the test subjects to be aware that the experiment was non-invasive and that they should be as relaxed as possible. This means not being tense (especially in the facial muscles because moving one's teeth and clenching the jaws interferes with the EEG signal). All of the above-mentioned factors minimize the impact of muscular artifacts. All participants signed an informed consent form to participate in the study.

2.2. Procedures

We first analyzed the interpreted measurement results. Seven static ads were included in the analysis. In practice, we could have used them as printed ads, posters on exterior surfaces, or printed materials (e.g., posters, floor stickers, wobblers) in a physical retail space. The entire protocol, i.e., informing the test subjects, preparation (calibration) of devices or tools for EEG, and the execution of the experiment lasted approximately 20-25 minutes. This method is also used to assess visual attention, especially in those stimuli containing elements we would like to be noticed (e.g., brand, written message, product).

The entire testing protocol should not last longer than 15 minutes because following the instructions and maintaining a satisfactory level of attention drastically decreases in time. This may indicate fatigue (longer blinks and lower frequency or extended eye closure) or the fact that visual attention is directed away from the stimuli (the ad in our case). In such cases, the test subject is reminded to maintain concentration and focus on the monitor. To ensure accurate EEG readings, measurements can be

temporarily paused if the participant requires a break.

Neuromarketing measurements were performed in Ljubljana (March 2023) on the premises of the research company NeuroM, designed to provide a relaxing atmosphere. The test subjects sat on chairs approximately one meter away from the monitor, playing static advertising material. The recording protocol was divided into two parts. The first part was calibration, during which images were displayed to the test subjects from the IAPS (International Affective Picture System) base. These are validated images that evoke strong emotional reactions (positive/negative valence or positive/negative arousal). This helps the test subjects get used to the logic of the protocol (stimulus – neutral part – stimulus – neutral part), and this is also the segment where electrolysis or contact between the EEG electrode and the scalp is finally established.

The central component of the experimental procedure involved the presentation of static advertising elements. The presentation of the static advertisements was randomize ed and therefore distinct for each test subject. Following the presentation of each advertisement, a neutral image was displayed with the objective of resetting brain activity and preparing the participants for the subsequent stimulus. These intervals ensured the accurate measurement of cognitive and emotional responses by eliminating any residual effects that may have been caused by the previous advertisements, thus ensuring an accurate representation of the subjects' responses. Each static advertisement was displayed for a period of seven seconds, followed by a neutral image for a further seven seconds. The investigation concentrated on NEMFA indicators pertinent to static advertisements. Indicators related to dynamic advertisements, including peak counts and branding-specific indicators, were omitted to ensure the results correspond with the emphasis on static stimuli.

The comparability of the data was ensured by utilizing a proprietary internal database, which contained data from over 1,000 previously analyzed advertisements. This database, built on clearly defined criteria, provided indicators that allow for consistent interpretation of the results and facilitate a comparison across different experiments. Additionally, the calibration part of IAPS images provides a baseline for each sample. Data analysis was performed using the Matlab program and EEGLab library as follows:

1. preprocessing of raw EEG data: use of different statistical methods and algorithms for removing artefacts from the EEG signal (noises);

2. spectral analysis of the clean signal using the Fast Fourier Transform algorithm: This enables further signal analysis within specific frequencies or specters (alpha, beta, theta, etc.);

3. calculation of different values/properties of the signal within individual specters of interest.

While formal statistical tests (e.g., t-tests) were not performed due to limitations in sample size, comparing assessments of mean and peak values across essential variables (ERI, AI, CLI) yield significant insights. This restriction is recognized, and subsequent studies should include bigger samples for rigorous statistical validation.

2.3. Explanation of terms

The NEMFA (Neuro-Emotional Marketing and Feedback Analysis) index derives from studies undertaken by the Slovenian market research company Valicon. That framework was created to provide a scientific, neuromarketing-oriented method for assessing advertisement success by quantifying essential consumer engagement measures, including emotional response, attention, and cognitive load. The NEMFA index synthesizes ideas from neuroscience and marketing, providing a robust tool for analyzing consumer responses to diverse advertising stimuli.

This study adapts the NEMFA index for static advertisements, emphasizing the Emotional

Response Index (ERI), Attention Indicator (AI), and Cognitive Load Index (CLI). The selected indicators are pertinent to the static format, facilitating an accurate and focused examination of consumer interaction with visual stimuli.

TABLE 1: Indicators of the NEMFA index

Emotional response index (herein referred to as ERI)	It expresses the consumer's comfort and tendency/incentive to approach during the entire ad. A higher emotional response index indicates that the ad generates more feelings of affection, comfort, happiness, and desire. The measurement scale is normalized as the median of 50 represents a neutral emotional response, with values under the median indicating dislike or aversion (withdrawal) to the ad.
Attention indicator (herein referred to as AI)	It provides information on the performance of the entire ad with regard to the consumer's attention. The measurement scale is normalized; the median of 50 represents a neutral emotional response, with values higher than that considered above average and values lower than the median below average.
Cognitive Load Index (CLI)	It reflects the cognitive effort required to process the advertisement. Optimal values (48–50) suggest satisfactory cognitive load for encoding information into long-term memory.

This study only examines ERI, AI, and CLI as part of a focused assessment of static advertisements and their distinct characteristics and effects on consumer engagement. ERI provides insights into the emotional impact of the advertisement, AI analyzes its capacity to attract and maintain attention, and CLI examines the cognitive effort needed to comprehend the content. Collectively, these indicators establish a comprehensive framework for comprehending the impact of static advertisements on consumer behavior.

Indicators including the Number of Peaks of Emotional Response while Attention Peaks were excluded from this analysis. These indicators are particularly relevant for dynamic advertisements, where temporal changes and transitions are critical, even if they are integral to the overall NEMFA architecture. Their absence ensures that the analysis focuses on static properties of the stimuli, increasing the precision and applicability of conclusions.

This study demonstrates the versatility of the NEMFA index across several advertising media. Prioritizing indicators pertinent to static advertisements showcases the framework's adaptability while upholding analytical rigor. The emphasis on ERI, AI, and CLI not only corresponds with the aims of this study but also highlights the necessity of choosing suitable indicators according to the advertising format under examination. This focused methodology enhances the comprehension of static advertisement efficacy and offers practical insights for marketers.

2.4. Study results

We included seven static ads in the research study. These could be used in practice as printed ads, posters on exterior surfaces, or printed material (e.g., poster, floor sticker, wobbler) at a physical retail space. All seven static ads have in common that they advertise a red-colored jam. The flavor was written down on purpose, as we wanted the test subject to focus on the structure of the ad and not the taste, which could have impacted their responses. It is true that color also defines likability. We decided to choose red as it may indicate the flavor of a strawberry, raspberry, currant, wild berries, or plum. The results respond to the study's research questions

TABLE 2: Results of static advertising materials

STATIC ADVERTISING ELEMENTS	Reference of the static ad:	Description of the static ad:	Average ERI	The highest ERI peak	Average AI	The highest AI peak	Average CLI
	01	The ad contains the following elements: headline, taste-appeal photo, product, supporting text, price	46.5	61.27	50.22	55.33	48.94
	02	The ad contains the following elements: headline, taste-appeal photo, packaged product, supporting text, price, promotion	52.79	61.73	50.79	62.66	47.55
	03	The ad contains the following elements: headline, taste-appeal photo, packaged product, supporting text	48.79	57.49	50.40	58.85	46.11
	04	The ad contains the following elements: packaged product, supporting text	50.23	66.11	49.17	57.37	48.61
	05	The ad contains the following elements: taste-appeal photo, supporting text	46.52	59.46	51.66	62.77	46.05
	06	The ad contains the following elements: photo of a person, taste-appeal photo, supporting text	48.24	57.92	50.97	58.36	48.83
	07	The ad contains the following elements: headline, photo of a person, taste-appeal photo, packaged product, supporting text	51.06	61.53	51.35	59.27	44.74

by pinpointing particular design components and assessing their influence on consumer engagement indicators, such as ERI, AI, and CLI.

Each ad was created using a different combination of elements (Table 2): headline, taste-appeal photo, a packaged product, supporting text, price, and image of a person. We were interested in finding out which combination of elements engages the test subjects the most. We measured ERI to establish the level of attention generated by the static stimulus in the test subjects and CLI, which interprets cognitive load with regard to the working memory and encoding the information into long-term memory.

It is evident from the data obtained that the ERI values of all tested static ads are in a reasonably similar range (between 46.50 and 52.79). Given that these ads are not the type to experience many emotions, it is not surprising that the values do not significantly exceed the neutral emotional response (50). The results show that the test subjects are more inclined towards ads 02, 04, and 07 and less in favor of ads 01, 03, 05, and 06. The best ERI scores were achieved by ads 02 (52.79) and 07 (51.06), whereas ads 01 (46.50) and 05 (46.52) had the lowest score. The indicators measuring the average ERI and displaying the emotional response peak in subjects have shown the highest score for ad 04 (66.11) and the lowest for ads 03 (57.49) and 04 (57.92). The highest attention indicator was observed in ads 05 (51.35) and 07 (51.66), and the lowest in ad 04 (49.17). The indicators measuring the average AI and displaying the peak of the consumer's attention generated by the measured showed the highest score in ads 02 (62.66) and 05 (62.77) and the lowest in ad 01 (55.53).

The indicator average CLI was the highest in ads 04 (48.61), 06 (48.83), and 01 (48.94), which indicates that the subjects processed the information from the ads. The average CLI, ranging between 48 and 50, suggests a satisfactory working memory load level, indicating the information was encoded into the long-term memory. The lowest CLI score was seen in ad 07

(44.74), which means the ad could not engage the working memory for remembering the information.

Overall, it can be concluded that the top performing ads were 07 and 02, and the lowest score was achieved by ads 01 and 04. It may, therefore, be assumed that the ideal combination engaging the subjects the most in terms of attention, appeal component (positive emotional valence), and cognitive load is the following: headline, photo of a person, taste-appeal photo, packaged product, and supporting text.

If people are supposed to remember the ads with less information much better (ad 07 contains all the information from the set), a question arises: how is this possible? The answer lies in the fact that ad 07 has a low CLI. Too many elements can distract the sight and consequently decrease visual attention. If an ad is not capable of keeping one's eyes fixed on the main messages of the ad, then it becomes difficult to memorize and later retrieve the most important information. In this case, we should additionally validate the ad with the eye movement tracker and AOI (area of interest) analysis.

Based on ad 04, we can conclude that it impressed the test subjects the most on account of its emphasized promotional price. The lowest performing ads were 01 and 04. Interestingly, ad 02 has a better ERI, although it contains only one additional element – a special offer. Based on the findings, we can conclude that this element stood out in color contrast and, as such, captured visual attention and made the ad more appealing. To verify these findings, additional methods and techniques could be employed to measure visual attention and to further analyze consumer engagement.

Since the most exposed element (the largest one and placed in the center of the ad) is a pancake coated with red color, we could assume that at an unconscious level, the reaction is associated with unpleasant emotions when looking at the spilled red color, as it may resemble blood. Ads 03 and 05 point to this thesis as they

share the same element in the foreground and have ERI below 50. Ad 04 performed well (high ERI peak, CLI range between 48 and 50, which is a good indicator). Attention was slightly below 50, resulting from not being visually dominant, but CLI indicates that the ad generates sufficient engagement in terms of working memory load.

In a static ad, which generally struggles to capture the consumer's attention and engage/activate the consumer, it is vital to build a story around one or two elements in the ad that immediately attract attention. The ad 04 is the closest to achieving this. The issue with this ad lies in the lack of sufficient contrast between the text and the background (a greater color difference would be necessary). The font and the size of the message are problematic. A clearer font, which does not resemble a handwritten text, would be a better choice. The same text (Jam) appears twice, which is redundant. The message could have been continued from the first element in the lower part without duplication (a jam package labeled with the word Jam).

This paper concentrates on the analysis of static advertisements, given their considerable potential to affect consumer behavior. By focusing the analysis on static advertisements, the study permitted a comprehensive examination of the design elements and their influence on consumer engagement, including attention, emotional involvement, and cognitive processing. Although dynamic advertisements, such as those broadcast on radio or television, were initially considered during the research design phase, their inherent complexity and reliance on auditory elements rendered them beyond the scope of this analysis.

In summary, the findings indicate that static advertisements featuring a headline, an individual's photograph, a sensory-stimulating image, and special pricing are the most effective in capturing consumer attention, fostering emotional engagement, and enhancing cognitive processing. The findings closely address the research questions, highlighting the significance

of strategic design and pricing in static advertising.

3. DISCUSSION

Numerous studies in the extant literature have explored the use of EEG in marketing research, often concentrating on consumer decision-making, emotional engagement, and attentiveness. While much of that research has focused on dynamic advertisements, such as TV or video ads (Khushaba et al., 2013; Suzuki et al., 2012), this study uniquely isolates static advertisements to examine their specific design components and their impact on consumer engagement.

The results of this study outline a unique combination of design elements that improve consumer interaction: a headline, a person's picture, a visually engaging image, a product that is packaged, and writing that goes with it. The findings of Azimi et al. (2012), who highlighted the influence of visual appearance on user response in online advertising, are consistent with this combination. Furthermore, by showing that well-integrated, content-rich designs can be just as effective—if not more so—at encouraging interaction, these findings cast doubt on the widely held belief that minimalist designs are fundamentally better.

One interesting discovery is how promotional prices affect consumer engagement. Prominent and contrasting price tags garnered a lot of attention and enhanced cognitive processing, indicating that this component ought to be prioritized in static ad design. These results are in line with studies conducted by Ahmetoglu et al. (2014), who highlighted the importance of visual salience in marketing strategies and critically investigated how pricing strategies affect consumer behavior and perceptions.

Furthermore, the study reveals crucial issues for optimizing static advertisements, such as the relevance of visual contrast, font clarity, and the strategic positioning of textual information.

Advertisements featuring low visual contrast or handwritten-style fonts, as Ad 04 does, had diminished efficacy despite possessing otherwise robust components. This illustrates that even slight design faults can dramatically detract from an advertisement's overall performance.

From a neuromarketing standpoint, the use of EEG yielded valuable quantitative data on emotional and cognitive responses. The Emotional Response Index (ERI), Attention Indicator (AI), and Cognitive Load Index (CLI) facilitated a detailed comprehension of the impact of various marketing elements on consumer behavior. Advertisements with elevated CLI ratings (between 48 and 50) effectively engaged participants' working memory, thus facilitating the encoding of information into long-term memory. In contrast, advertisements with diminished CLI ratings could not elicit adequate cognitive attention, highlighting the intricate equilibrium required in advertisement design.

The results also respond to the study's research inquiries. Concerning the first inquiry—recognizing design components that captivate consumer attention, evoke emotional engagement, and facilitate cognitive processing—the statistics unequivocally indicate that a combination of visual and textual features yields the most engagement. The study verifies that promotional pricing serves as an effective strategic strategy for augmenting attention and improving memory encoding.

Notwithstanding these insights, certain limits must be recognized. The regulated laboratory setting may not entirely emulate the intricacies and diversions of actual retail environments. Likewise, the limited and relatively uniform sample size (30 participants) constrains the generalizability of the results. Subsequent research should strive to incorporate a broader range of demographic groups, performing experiments in genuine retail settings. Furthermore, integrating EEG with eye-tracking technology may yield a more thorough comprehension of consumer engagement with static advertisements.

The present research study enhances the field of neuromarketing by providing theoretical and practical insights for optimizing static advertisements. The results highlight the significance of deliberate design, focusing on aspects such as promotional price, visual contrast, and cognitive load management. These insights provide a significant foundation for future study and practical applications in retail advertising.

4. CONCLUSION

This study gives useful insights into the design of static advertisements, indicating an ideal combination of components that optimize consumer engagement. The amalgamation of a headline, an image of an individual, a visually engaging sensory image, a packaged product, and supplementary writing proved to be the most efficacious.

These findings contest previous notions that minimalistic designs are universally preferable, emphasizing the significance of context and content. Promotional pricing and distinct visual contrast are essential elements that greatly improve cognitive processing and memory storage. By considering these elements, advertisers can develop more successful materials customized to consumer behavior.

Although the results are encouraging, the study's constraints—namely, its contrived environment and limited sample size—highlight the necessity for additional investigation. Future research should scrutinize these components in authentic retail contexts and involve varied demographic groups to broaden applicability.

This research enhances the field of neuromarketing by providing practical guidance for the optimization of static advertisements. By focusing on individual design aspects and their impact on engagement, it offers valuable tools to advertisers trying to boost consumer experience and purchasing intent.

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