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Perceptual and Kansei Responses to Alphanumeric Onomastics in Emotional Packaging Design Across Age Groups

ABSTRACT

This study examines perceptual and Kansei responses to alphanumeric onomastics in emotional packaging design across different age groups. Grounded in contemporary perception theory and Kansei Engineering, the research investigates how alphanumeric naming cues on packaging function as affective stimuli that shape emotional meaning and product interpretation. A total of 204 consumers were recruited through convenience sampling and categorized into five age groups, ranging from 12 years to over 41 years. Experimental packaging stimuli featuring alphanumeric names (e.g., H_2O) were designed using Adobe Photoshop. Participants evaluated their affective responses by selecting from 11 emotion-related descriptors, including healthy, desirable, amazing, reliable, and fearful. Word-frequency analysis was used to identify dominant Kansei descriptors, while ANOVA and Kruskal–Wallis tests assessed age-related differences in perceptual responses. Results indicated no significant differences across age groups (ANOVA: $F(4, 50) = 1.27$, $p = .294$; Kruskal–Wallis: $\chi^2(4, N = 204) = 8.43$, $p = .077$), suggesting a consistent perceptual and emotional interpretation of alphanumeric onomastics. Overall, alphanumeric naming elicited moderately positive Kansei responses, with healthy and amazing emerging as the most frequently associated perceptions. These findings suggest that alphanumeric onomastics operate as age-independent perceptual cues, supporting theories of shared cognitive processing and affective perception. The study contributes to Emotional Design of Packaging (EDOP) by demonstrating how alphanumeric naming can function as a universally resonant design strategy, reinforcing Kansei-based approaches to inclusive and emotionally engaging packaging. Also, these findings align with universal design principles, suggesting that alphanumeric onomastics function as inclusive perceptual cues capable of eliciting consistent Kansei responses across age groups. Future research is recommended to explore broader product categories and larger samples to further validate the perceptual robustness of alphanumeric onomastics in packaging design.

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Alphanumeric onomastics, Kansei engineering, emotional design of packaging (EDOP), perceptual and affective processing, consumer emotion, age-related perception, visual naming cues, universal design principle

1. Introduction

TThe landscape of modern packaging research is increasingly multidimensional, as evidenced by the diverse inquiries presented at the 12th International Symposium on Graphic Engineering and Design (Grid 2024). Recent scholarly focus has largely centered on the eco-friendly and material aspects of design, with researchers investigating sustainable alternatives and the technical properties of substrates (Madhan, Nirmala & Kanchana, 2024;

Jamnicki Hanzer, 2024; Nechita, Roman & Năstac, 2024). Concurrently, the integration of Artificial Intelligence (AI) and Smart Packaging technologies (Vladić et al., 2024; Mahović Poljaček et al., 2024) reflects an industry-wide shift toward interactive and data-driven systems. While significant strides have been made in ergonomics (Bošnjaković et al., 2024) and the use of eye-tracking analysis to quantify visual attention (Gvoka et al., 2024), a specialized gap remains regarding the linguistic and affective power of product naming. While recent studies have explored branding broadly (Oluyemi, Adelabu & Oladumiye, 2024; Liokos et al., 2024), there exists a void regarding how alphanumeric nomenclature specifically influences emotional perception—a gap the present study seeks to address through a Kansei-based evaluation.

The growing emphasis on emotional engagement in product communication has significantly transformed contemporary packaging design. Beyond their functional role of protecting and identifying products, packages now serve as emotional interfaces that influence consumer perception, preference, and purchasing behaviour. In increasingly competitive consumer markets, designers and manufacturers seek innovative strategies capable of creating memorable experiences and strengthening emotional attachment between consumers and products. One such strategy is the strategic application of distinctive naming systems, particularly alphanumeric onomastics, in product labeling and packaging design. Although alphanumeric naming conventions have long been established in scientific, technological, and industrial contexts, their predictive emotional influence on consumer perception and behaviour within emotionally driven product categories remains insufficiently examined and has not yet been abundantly established in existing packaging design studies.

Alphanumeric onomastics refers to naming conventions that combine letters and numerical characters within a product name or label. These naming structures have become increasingly visible across several product categories, especially in technology-driven and industrial products where they often communicate technical sophistication, performance differentiation, or product hierarchy. However, despite their growing prevalence, the emotional implications of alphanumeric naming systems in consumer packaging remain insufficiently explored, particularly within non-alcoholic beverage packaging where emotional and sensory associations strongly shape consumer experience.

The increasing scholarly attention to emotional design has reinforced the importance of understanding how visual and verbal design elements stimulate affective responses among users. Emotional engagement in packaging design has attracted considerable academic interest because consumer decisions are often influenced not only by product functionality but also by emotional perception and experiential meaning (Liu, Samsudin & Zou, 2024). This perspective aligns with the principles of Kansei Engineering, a design methodology pioneered by Mitsuo Nagamachi in the 1970s. Kansei Engineering focuses on translating human emotions, impressions, and sensory experiences into design parameters that can improve product appeal and user satisfaction (Suzianti & Aldianto, 2020). According to Nagamachi (2006), Kansei encompasses the subjective psychological impressions individuals develop toward an artifact, environment, or situation through sensory and cognitive interaction.

Within packaging research, emotional responses have been shown to influence product evaluation, consumer attachment, and purchase intention (Donovan et al., 1994; Rook & Gardner, 1993). Previous studies have also demonstrated that packaging elements such as colour, typography, shape, naming, and visual composition contribute significantly to emotional interpretation and consumer behaviour (Pentus, Mehine & Kuusik, 2014; Velasco et al., 2014; Vyas, 2015; Wei et al., 2014). Nevertheless, the emotional role of alphanumeric naming structures within packaging design remains relatively under examined.
Existing research suggests that alphanumeric names are generally perceived as more appropriate for technically complex, utilitarian, or emotionally neutral products (Pavia & Costa, 1993). This observation raises important questions regarding their suitability and emotional effectiveness within non-alcoholic beverage packaging, a category commonly associated with pleasure, refreshment, lifestyle identity, and sensory enjoyment.

Non-alcoholic beverages represent an important context for investigating emotional packaging design because of their widespread consumption across diverse demographic groups and their continued resilience within fluctuating economic conditions (Solange et al., 2014). Packaging in this category plays a central role in attracting attention, shaping expectations, and influencing emotional reactions at the point of purchase. Furthermore, emotional responses to beverage packaging may vary across age groups due to differences in cognitive interpretation, cultural familiarity, visual preference, and generational exposure to alphanumeric communication systems. Understanding these variations is therefore essential for designers seeking to create packaging that effectively resonates with diverse consumer populations.

Against this background, this study investigates the perceptual and Kansei responses to alphanumeric onomastics in emotional packaging design across age groups within the non-alcoholic beverage sector. The study seeks to examine how consumers emotionally perceive and interpret alphanumeric naming systems in beverage packaging and whether such responses differ among age categories. By integrating perceptual evaluation with Kansei-based emotional assessment,

the research contributes to the broader discourse on emotional design, packaging communication, and consumer-product interaction. The findings are expected to provide valuable insights for designers, marketers, and manufacturers interested in developing emotionally engaging packaging strategies that align with contemporary consumer expectations.

1.1. Alphanumeric Onomastics and Visual Naming Cues

The influence of packaging design on consumer emotions has been widely acknowledged, with both verbal and nonverbal elements contributing significantly to perception, interpretation, and purchase behaviour (Pentus, Mehine & Kuusik, 2014). Among these elements, naming systems have become increasingly important in branding and packaging communication(Oluyemi, Adelabu & Oladumiye, 2024). The strategic use of words, symbols, letters, and numerical characters in assigning product identities has attracted scholarly attention within graphic design and consumer studies (Oluyemi, 2018). In this context, alphanumeric onomastics refers to naming conventions that combine alphabetic and numeric characters either in digit or word form to create distinctive product identities.

Alphanumeric brand names have been shown to shape consumer evaluations, perceptions, and associations toward products (Boyd, 1985; Gunasti & Ross, 2010; King & Janiszewski, 2011; Pavia & Costa, 1993). Common examples such as Coke Zero and 5 Alive demonstrate how numerical elements are integrated into commercial branding to enhance uniqueness, memorability, and differentiation. Research suggests that alphanumeric names function as visual and semantic cues capable of influencing overall brand and product assessment (Janiszewski & King, 2010; Van Kerckhove, Slabbinck & Pandelaere, 2011; Kara, 2016; Motoki et al., 2020; Oluyemi, Oladumiye & Adelabu, 2021; Velasco et al., 2014).

The anchoring theory of alphanumeric naming proposes that numbers embedded within brand names can positively signal specific product attributes and guide consumer interpretation (Yan & Duclos, 2013). Certain numbers may therefore be deliberately selected because of their symbolic appeal, familiarity, or semantic associations. Studies by Janiszewski and King (2010) and Van Kerckhove, Slabbinck and Pandelaere (2011) indicate that the success of alphanumeric brand names may partly depend on the perceived attractiveness or likability of the numerical components used. Consequently, alphanumeric names may operate not only as identifiers but also as communicative devices capable of stimulating expectations and emotional associations.

Despite their growing use, previous studies indicate that alphanumeric naming systems are more commonly associated with technical, industrial, and automobile products where numbers often represent specifications, hierarchy, or performance characteristics (Duduciuc & Ivan, 2014). Gunasti and Ross (2010) further argue that alphanumeric names can influence consumer preferences even when consumers do not fully understand the meaning of the attributes represented. Similarly, Gunasti and Ozcan (2016) and Lee (2014) found that semantic associations generated by alphanumeric names can positively influence purchase intention. However, these findings are largely concentrated within technical product categories, leaving limited understanding of their emotional implications in sensory and emotionally oriented products such as non-alcoholic beverages.

Within non-alcoholic beverage packaging, descriptors and naming systems have been found to facilitate product identification and category recognition (Oluyemi, 2021). Nevertheless, the integration of alphanumeric onomastics in beverage packaging may present challenges due to unfamiliarity and weaker semantic associations between numerical elements and the product category (Oluyemi, 2021).
This suggests a possible tension between technical visual naming cues and emotionally driven consumer expectations within beverage markets. The limited empirical evidence surrounding the emotional consequences of alphanumeric naming in beverage packaging therefore reveals an important gap in existing literature.

1.2. Kansei Engineering and Emotional Design of Packaging

The relationship between emotion and design has gained substantial scholarly attention through the development of Kansei Engineering. Originating from the work of Mitsuo Nagamachi in the 1970s, Kansei Engineering seeks to translate human emotional responses, impressions, and sensory experiences into design parameters that can improve product satisfaction and emotional engagement (Suzianti & Aldianto, 2020). Nagamachi (2006) defines Kansei as the psychological feeling or subjective impression experienced by individuals toward an object, environment, or situation through sensory and cognitive interaction.

Within packaging design, Kansei Engineering has contributed to the emergence of Emotional Design of Packaging (EDOP), which emphasizes the ability of packaging elements to evoke affective reactions and emotional attachment among consumers. Emotional design extends beyond functionality and aesthetics by considering how packaging stimulates feelings such as pleasure, excitement, trust, comfort, and curiosity during consumer interaction. Previous studies have shown that packaging elements including typography, colour, shape, material, graphics, and naming systems can influence emotional interpretation and

product preference (Pentus, Mehine & Kuusik, 2014; Velasco et al., 2014; Vyas, 2015; Wei et al., 2014).

The application of Kansei principles to packaging design reflects a broader shift from purely functional communication toward emotionally engaging consumer experiences. In this regard, alphanumeric onomastics may function as emotional design cues capable of shaping affective impressions either positively or negatively depending on consumer interpretation. However, the emotional influence of alphanumeric naming structures within packaging remains insufficiently established, particularly in non-technical consumer goods. This creates the need to examine whether such naming systems can effectively contribute to emotional packaging experiences within non-alcoholic beverage products.

1.3. Perceptual and Affective Processing in Consumer Emotion

Consumer emotional response is a critical aspect of consumer behaviour because it influences evaluation, interpretation, preference formation, and purchasing decisions. Pentus, Mehine and Kuusik (2014) describe emotional response as the reflective emotion associated with an individual's evaluation of a relevant stimulus. Emotional processing within packaging design involves both perceptual and affective dimensions, where consumers cognitively interpret visual information while simultaneously experiencing emotional reactions.

Research indicates that measuring emotional responses remains complex because emotions involve multiple psychological and physiological processes (Pentus, Mehine & Kuusik, 2014). According to Poels and Dewitte (2006), methods of emotion measurement can generally be categorized into self-report techniques and autonomic psychophysiological approaches. Psychophysiological methods include EEG, facial EMG, and fMRI, which measure physiological brain and muscle responses associated with emotional experience. In contrast, self-report methods capture consciously experienced feelings through verbal and visual scales such as PAD (Pleasure-Arousal-Dominance) and SAM (Self-Assessment Manikin).

The present study adopts the self-report approach because it is suitable for examining the conscious and reflective dimensions of emotional experience that consumers can verbally describe (Pentus, Mehine & Kuusik, 2014).
Although self-report methods may not fully capture unconscious emotional reactions, they remain valuable for understanding cognitive-affective interpretation within packaging perception. In the context of alphanumeric onomastics, self-report evaluation can provide insights into how consumers consciously perceive, interpret, and emotionally respond to naming structures integrated into packaging design.

1.4. Age-Related Perception and Universal Design Principles

Consumer interpretation of packaging elements is often influenced by demographic characteristics such as age and gender. Previous studies have shown that demographic variables affect consumer preferences, perception patterns, and emotional interpretation of design cues. Duduciuc and Ivan (2014), for example, found that women tend to respond more positively to feminine verbal expressions than men. Similarly, age differences have been associated with variations in cognitive familiarity, semantic interpretation, and emotional preference in branding and packaging communication.

Research by Oluyemi (2021) emphasizes the importance of considering consumers' age range in the development of product names and branding strategies. The study recommends that companies and advertisers prioritize audience perception when designing brand identities. Age-related differences are particularly relevant in the interpretation of alphanumeric onomastics because familiarity with alphanumeric communication systems may vary across generations due to differences in technological exposure, literacy patterns, and cultural associations.

This perspective aligns with universal design principles, which advocate the creation of products and communication systems that can be understood and appreciated across diverse user groups regardless of age or ability. Within packaging design, universal communication requires that naming systems remain accessible, meaningful, and emotionally engaging to broad consumer populations. Therefore, understanding how different age groups perceive and emotionally respond to alphanumeric onomastics is essential for developing packaging designs capable of achieving inclusive emotional communication.

Building upon these considerations, the present study investigates perceptual and Kansei responses to alphanumeric onomastics in non-alcoholic beverage packaging across age groups. By examining the interaction between visual naming cues, emotional processing, and age-related perception, the study contributes to the growing discourse on emotional packaging design and consumer-centred communication strategies.

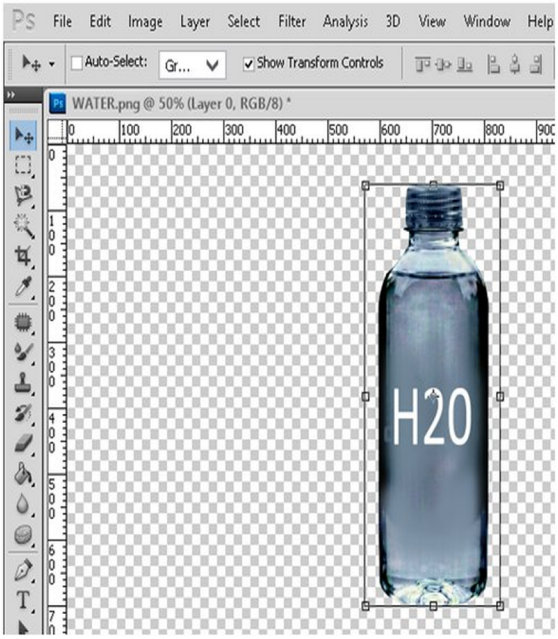
2. Methodology

This study adopted a quantitative survey approach to investigate perceptual and Kansei responses to alphanumeric onomastics in non-alcoholic beverage packaging across age groups. A total of 204 consumers of non-alcoholic beverages participated in the study through convenience sampling.

The sample was divided into five age groups: 12–15 years (n = 14, 6.9%), 16–20 years (n = 40, 19.6%), 21–30 years (n = 85, 41.7%), 31–40 years (n = 31, 15.2%), and 41 years and above (n = 34, 16.7%).Survey design and data collection: Based on the literature review and similar studies, a student survey questionnaire was developed. The survey was conducted anonymously.

2.1. Stimuli Design

The visual stimuli used in this study were designed using Adobe Photoshop. Image adjustment and painting tools were employed to create controlled visual representations of non-alcoholic beverage packaging incorporating alphanumeric onomastics (e.g., “H2O”) (see Figure 1). The designs were developed to maintain visual consistency across stimuli.



» **Figure 1:** *Stimuli Design in Adobe Photoshop*

2.2. Procedure

Participants were shown the designed stimuli and asked to evaluate their emotional responses based on their immediate feelings while viewing the packaging designs. To capture affective reactions, participants were provided with a list of 11 descriptive emotional and perceptual words: healthy, honourable, desirable, nice taste, familiar, amazing, funny, childish, reliable, fearful, and captivating. Participants selected the words that best described their feelings toward each stimulus and recorded their responses on an A4 response sheet.

2.3. Data Collection and Measures

The frequency of each selected descriptor was computed and converted into percentages for each age group, allowing comparison of emotional response patterns across demographic categories. This approach enabled the mapping of perceptual and affective tendencies associated with alphanumeric onomastics in packaging design.

2.4. Data Analysis

A one-way analysis of variance (ANOVA) was conducted to examine differences in emotional response scores across the five age groups. The results indicated no statistically significant difference between groups, $F(4, 50) = 1.27$, $p = .294$, $\eta = .304$, $\eta^2 = .092$, suggesting that approximately 9.2% of the variance in emotional response scores was attributable to age group membership. Overall, the mean differences across groups were relatively small.

Given concerns regarding normality assumptions and the ordinal nature of the response data, a non-parametric Kruskal–Wallis test was also conducted to verify the robustness of the findings. This additional analysis was necessary to further examine differences in emotional responses across multiple age groups without assuming parametric distribution requirements. The Kruskal–Wallis test therefore served as a confirmatory method for assessing whether age significantly influenced emotional perception of alphanumeric packaging stimuli.

3. Results

The results of the analysis are summarized in Tables 1 through 4. Data regarding emotional responses to alphanumeric onomastics in non-alcoholic beverage packaging indicate that a "healthy feeling" was the most prevalent reaction, accounting for 41% of participants (n=84). This sentiment was consistent across all age demographics. Other significant emotional characterizations included an "amazing feeling" (30%, n=63), "childish characteristics" (12%, n=26), "reliable characteristics" (3.9%, n=8), and a "funny feeling" (2.9%, n=6).

When disaggregated by age group, specific emotional patterns emerged:

- Ages 21–30: Peculiar feelings were identified as "Amazing" (18%), "Healthy" (12%), and "Childish" (3.4%).
- Ages 31–40: This group showed a distinct preference for "Healthy" (11%) associations.
- Ages 41 and above: This demographic reported peculiar associations with "Healthy feelings" (9.7%) and a unique "feeling of Familiarity" (1.9%) regarding the alphanumeric onomastics within the package brands.

To determine if these variations were statistically significant across age demographics, a non-paramet-

ric Kruskal–Wallis test was conducted. The results revealed no statistically significant differences between the groups, $\chi^2(4) = 8.43$, $p = .077$, $e^2 = .089$. This indicates that while subtle variations in perception exist among age cohorts, the overall emotional reception of alphanumeric onomastics is relatively uniform, showing only a small-to-moderate effect size.

The results are further elucidated through both parametric and non-parametric analyses, as presented in Tables 2 through 5. The findings from the ANOVA and the Kruskal–Wallis test consistently demonstrate an absence of statistically significant differences across the demographic groups.

While the ANOVA indicated that group membership explained approximately 9.2% of the variance, the lack of statistical significance suggests that this proportion is insufficient to establish meaningful or generalizable group differences. Corroborating this, the Kruskal–Wallis test—utilized for its robustness against deviations in normality and homogeneity—yielded a comparable small-to-moderate effect size ($e^2 = .089$).

Taken together, these statistical outcomes provide strong evidence that the observed variations between groups are likely attributable to random chance rather than systematic, group-level effects.

This suggests that alphanumeric naming conventions in non-alcoholic beverage packaging possess an "age-neutral" quality, exerting a relatively uniform emotional influence across the consumer lifecycle.

3.1. Discussion of Emotional Responses and Demographic Consistency

The empirical data suggests that alphanumeric onomastics in product packaging do not exert significantly divergent effects across age groups, indicating that age is not a primary determining factor in the emotional

Table 1

Percentage Distribution Showing Level of Emotional Response to Alphanumeric Name in the Packaging Design Stimuli in Relation to the Consumers' Age Group (%)

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11
G1	3.4	0.0	0.0	0.0	0.5	0.0	0.0	2.9	0.0	0.0	0.0
G2	4.9	0.5	0.0	0.0	0.0	8.8	0.5	3.4	0.5	0.0	0.9
G3	12	0.0	0.9	0.5	0.5	18	1.9	3.4	2.9	0.5	0.5
G4	11	0.5	0.0	0.5	0.0	1.9	0.0	0.5	0.0	0.5	0.0
G5	9.7	0.0	0.0	0.0	1.9	1.4	0.5	2.4	0.5	0.0	0.0
Sum%	**41**	**1**	**0.9**	**1**	**2.9**	**30.1**	**2.9**	**12.6**	**3.9**	**1**	**1.4**

E1: healthy, E2: honourable, E3: desirable, E4: nice taste, E5: familiar, E6:amazing, E7: funny, E8: childish, E9: reliable, E10: fearful, E11: captivating; G1: 12-15years, G2: 16-20 years, G3: 21-30 years, G4: 31-40 years, G5: 41 years and above

Table 2

Parametric analysis of variance (ANOVA) for group differences

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	62.579	4	15.645	1.271	0.294
Within Groups		615.213	50	12.304		
Total		677.792	54			

Table 3

Measure of Association between Emotional Response and Consumers' Age Group

	Eta	Eta Squared
Level of emotional response * Consumers' Age Group	.304	.092

Table 4

Non-parametric Kruskal–Wallis

Test Statistics[a,b]	
	Level of emotional response
Chi-Square	8.432
Df	4
Asymp. Sig.	.077

a. Kruskal Wallis Test
b. Grouping Variable: Consumers' Age Group

Table 5

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Level of emotional response is the same across categories of Consumers' Age Group.	Independent-Samples Kruskal-Wallis Test	.077	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

reception of these naming conventions. Several factors may account for this lack of statistical significance. The moderate effect sizes observed imply that while some variability exists, it was not sufficiently pronounced to achieve statistical significance within the current sample. This suggests a broad consistency in consumer responses, with no single demographic cohort exhibiting disproportionately high or low emotional arousal.

These findings align with the theoretical framework of Yan and Duclos (2013), which suggests that descriptive or suggestive features—as well as anchoring effects—may not always be potent enough to elicit polarized emotional responses. In the context of alphanumeric onomastics, this leads to a "neutralization" of emotional influence across categories. From a practical standpoint, this indicates that alphanumeric identifiers in packaging design may be an effective strategy for reaching a general audience, rather than being limited to a niche age demographic. This is further supported by the work of Gunasti and Ozcan (2016) and Lee (2014), who argue that alphanumeric brand names can positively influence purchase intentions across a wide consumer base.

However, while this "age-neutral" quality can be viewed as an asset for universal marketing, it presents specific challenges regarding the safety of vulnerable populations. Individuals who rely heavily on explicit descriptive cues—such as children, the elderly, or those with lower literacy levels—may experience unfavorable product identification when faced with ambiguous alphanumeric onomastics. While the moderate positive feelings elicited by these names may be universally relatable, the lack of distinct emotional markers could heighten the risk for those who require more concrete visual affordances.

Ultimately, these findings reinforce the assertions of Pavia and Costa (1993) and other scholars who suggest that alphanumeric naming is fitting for products catering to a broad audience, such as non-alcoholic beverages. Rather than prioritizing demographic segmentation, product developers should consider universal design principles that ensure packaging is simultaneously relatable and recognizable for all users. The presence of small-to-moderate effect sizes in this study highlights subtle, non-significant patterns where different age groups emphasize varying emotional nuances, such as "Healthy," "Amazing," or "Childish" associations.

In conclusion, while the statistical analysis did not reveal significant group differences, the results provide critical insights for branding and packaging strategies. Future research involving larger sample sizes, more varied stimuli, and a specific focus on vulnerable populations will be essential to determine if these subtle effects hold greater practical relevance in real-world environments. Furthermore, subsequent studies should explore diverse categories of alphanumeric nomenclature, such as comparing descriptive/suggestive names against chemical-based alphanumeric identifiers, to further refine the safety and appeal of modern packaging design.

4. Conclusion

This research provides a critical evaluation of perceptual and Kansei (affective) responses to alphanumeric onomastics, positioning these linguistic identifiers as central components within the framework of Emotional Design of Packaging (EDOP). By investigating the intersection of alphanumeric naming conventions and consumer age demographics, the study concludes that such onomastic features function as effective emotional triggers, consistently evoking moderate positive affective states—most notably "Healthy" and "Amazing" associations—across the consumer lifecycle.

The lack of statistically significant variance between age cohorts suggests that alphanumeric onomastics possess a unique cross-generational semiotic appeal. This age-neutral quality implies that alphanumeric naming is a viable strategy for achieving universal design, allowing brands to maintain a consistent emotional resonance without the need for fragmented demographic segmentation. These findings reinforce established theories in design semiotics which argue that alphanumeric identifiers can enhance purchase intentions and brand reliability by providing a sophisticated, modern, and universally relatable aesthetic.

However, the transition toward such universal design approaches must be balanced with a commitment to functional safety and cognitive accessibility. While the study identifies a broad emotional consensus, the presence of subtle, non-significant patterns among different age groups suggests that "strangeness" in design prototypicality still requires careful management. To mitigate the risks of misidentification—particularly among vulnerable consumers who rely on clear descriptive affordances—designers and manufacturers must ensure that emotional onomastic appeal does not come at the expense of categorical clarity.

Ultimately, this study contributes a foundational understanding of how Kansei engineering can be applied to packaging nomenclature to harmonize aesthetic attraction with user safety. While the current results validate the effectiveness of alphanumeric onomastics

for general-market non-alcoholic beverages, they also open a new scholarly path for investigating how more specialized or chemical-based alphanumeric naming might influence perception. Moving forward, the integration of these findings into design heuristics will be essential for developing packaging that is not only emotionally engaging but also universally recognizable and safe within the complex modern marketplace.

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