

Кузнецова В.В., магистрант

Костырева С.С., канд. филолог. наук, доцент

Витебский государственный технологический университет

Беларусь, г. Витебск, e-mail: kuz_valerie_89@mail.ru

ЗА ПРЕДЕЛАМИ ЭСТЕТИКИ: СЕМИОТИЧЕСКАЯ И СТРУКТУРНАЯ ЛОГИКА УПАКОВКИ В ПОЛЬЗОВАТЕЛЬСКО-ОРИЕНТИРОВАННОЙ ПРАКТИКЕ

Настоящая статья посвящена исследованию глубинных механизмов формирования смыслов и структурной организации упаковки, выходящих за рамки традиционного визуального подхода. В основе методологии исследования лежит междисциплинарный подход, объединяющий семиотический анализ визуальных и тактильных кодов упаковки со структурно-функциональным анализом ее эргономических и технологических характеристик. В результате исследования определено, что эффективность упаковки детерминруется не столько ее внешней привлекательностью, сколько способностью транслировать утилитарные и символические смыслы через определенную организацию формы, где семиотические коды и структурные решения функционируют в неразрывном единстве, формируя целостный пользовательский опыт, в следствие чего можно сделать вывод о том, что понимание данной двудеиной логики позволяет перейти от субъективного эстетического оценивания к объективному проектированию упаковки, отвечающей критериям функциональности, информативности и антропоцентричности

Ключевые слова: семиотика дизайна, структурная логика, упаковка, пользовательско-ориентированный дизайн, эргономика, визуальная коммуникация, функциональность, формообразование, потребительский опыт

Kuznetsova V.V., Master's student

Kostyрева S.S., PhD in Philology, Associate Professor

Vitebsk State Technological University

Republic of Belarus, Vitebsk, e-mail: kuz_valerie_89@mail.ru

BEYOND AESTHETICS: THE SEMIOTIC AND STRUCTURAL LOGIC OF PACKAGING IN USER-CENTERED PRACTICE

This article is dedicated to investigating the underlying mechanisms of meaning formation and structural organization in packaging that extend beyond the traditional visual approach. The research methodology is grounded in an interdisciplinary approach that integrates the semiotic analysis of visual and tactile codes of packaging with a structural-functional analysis of its ergonomic and technological characteristics. The findings reveal that the effectiveness of packaging is determined not so much by its external appeal as by its capacity to convey utilitarian and symbolic meanings through a particular organization of form, in which semiotic codes and structural solutions function in inseparable unity, thereby shaping a holistic user experience. Consequently, it can be concluded that understanding this dual logic enables a transition from subjective aesthetic evaluation to objective packaging design that meets the criteria of functionality, informativity, and anthropocentricity

Keywords: design semiotics, structural logic, packaging, user-centered design, ergonomics, visual communication, functionality, shaping/morphogenesis, consumer experience

Packaging functions not merely as a protective container, but as a multi-layered semiotic interface that conveys meanings through a constellation of heterogeneous codes. In this context, the construction of meaning is achieved through a dense composition involving the layering of

visual, tactile, and material sign systems, the cultural conventionality of which gives rise to a variability of interpretations. Traditional approaches to packaging design have often privileged aesthetic considerations, treating visual appeal as the primary determinant of consumer preference. While aesthetic qualities undoubtedly play a significant role in capturing attention and evoking emotional responses, such approaches tend to overlook the deeper semiotic and structural dimensions that govern how users engage with packaging in practice. A visually striking package that fails to communicate its functional logic or to accommodate ergonomic requirements may ultimately prove ineffective, undermining user satisfaction and brand perception. The present study therefore seeks to move beyond a purely aesthetic reading of packaging. It posits that the effectiveness of packaging is contingent upon a more complex interplay of semiotic codes and structural solutions, where a dual logic that informs both the meaning-making potential of packaging and its operational functionality.

Within this conceptual framework, three interrelated semiotic modalities – color, typography, and tactile experience – emerge as primary channels of meaning construction in packaging design. Each modality performs not only an aesthetic function but also a structural and signifying role: color establishes emotional resonance and categorical differentiation, typography ensures informational hierarchy and legibility, while material tactility influences perceived quality and value attribution. Collectively, these elements constitute an integrated semiotic system in which form and meaning are dialectically intertwined. This perspective positions packaging not as a peripheral decorative layer, but as a functional interface mediating the interaction between product and user, actively shaping perception, expectation, and engagement.

As a semiotic resource, colour exerts its communicative impact on multiple levels, which are distinguished by the nature of the meanings they generate: ranging from the denotative encoding of a physical attribute to connotative layers shaped by cultural codes. Research on packaging perception indicates that colour constitutes one of the most powerful tools for capturing consumer attention, since colour solutions are the first to enter the field of vision upon contact with the product [1]. Within the food packaging segment, green is consistently associated with naturalness and organic origin, whereas red, in contrast, signals intensity of flavour or appetite stimulation. These associations, however, are not universal but rather formed by a combination of cultural conventions and marketing strategies, and consequently exhibit considerable variability depending on the consumption context and product category.

Empirical evidence confirms that colour solutions in packaging are capable not only of shaping aesthetic perception but also of influencing deeper semantic evaluations of the product. An experimental study conducted among youth and adult consumers in Mexico found that the background colour of cigarette packs significantly enhances their appeal: packs featuring colour design were rated by respondents as more attractive compared with achromatic counterparts [2]. Moreover, blue and green were consistently identified by consumers as markers of menthol or mint flavour, indicating the existence of stable, culturally entrenched colour conventions within specific product categories. In a similar vein, within the cosmetics category, muted palettes, characterised by low saturation and chromatic restraint, function as markers of exclusivity, purity, and scientific efficacy, whereas bright, saturated tones are associated with accessibility and mass-market appeal.

Expanding upon the semiotic and structural logic of packaging, it becomes evident that typography constitutes far more than a mere vehicle for transmitting verbal information; rather, it operates as a sophisticated, multi-layered sign system that profoundly shapes the user's interpretive framework and functional interaction with the product. Within the paradigm of user-centered design (UCD), typographic that involves encompassing font selection, hierarchy, spacing, and legibility, function as main semiotic resources that bridge the product's utilitarian purpose with its symbolic communication, thereby contributing to what the Lockhart Packaging Matrix delineates as the inseparable triad of protection, utility, and communication across the physical, ecospheric, and human environments [3].

The semantic potency of typography is contingent upon its capacity to satisfy denotative clarity and connotative resonance as mutually reinforcing dimensions rather than discrete functions, meaning that at a denotative level typographic design must fulfill the fundamental ergonomic requirement of legibility, ensuring that essential content such as product identification, usage instructions, and legally mandated warnings is processed with minimal cognitive friction, which directly aligns with the user-centered design while at a connotative level it must simultaneously employ typographic stylization, whether through calligraphic variants, geometric sans-serifs, or bespoke letterforms, to encode cultural associations and brand narratives that shape consumer interpretation. As noted in the analysis of Squirrel Design Studio's corporate gifts, the deliberate selection of fonts such as "MF JinSong (noncommercial) regular" or "O Ebrima" is not an arbitrary aesthetic choice, but a strategic act of meaning-making that reinforces the studio's identity of innovative, geometric precision. This duality demonstrates that typography, much like color or materiality, functions as a code whose interpretation is governed by cultural conventions and semantic context.

Furthermore, the structural logic of packaging design mandates that typography operate in dynamic interplay with other visual elements like namely shape, composition pattern, and color to achieve a cohesive and intuitive user interface. The experimental manipulation of graphic design principles on tea packaging, specifically alignment, consistency, and contrast, reveals that typographic degradation (e.g., employing four or five disparate font families) not only compromises aesthetic appeal but also disrupts the structural integrity of the visual field, impeding the user's ability to efficiently decode product attributes. This substantiates the argument that typographic inconsistency can undermine the functional utility of a package, transforming what should be an intuitive interface into a fragmented and cognitively burdensome artifact [4].

Ultimately, when integrating typography into user-centered packaging design, it is important to move beyond subjective judgments of how it looks and instead focus on a systematic analysis of its semiotic (meaning-making) and structural (organizational) roles. Effective typographic design must be evaluated not solely on its stylistic merit but on its capacity to facilitate a seamless flow of information, support intuitive ergonomic interaction, and encode culturally resonant meanings within the constraints of the packaging's material and structural logic. Effective typographic design must be evaluated not solely on its stylistic merit but on its capacity to facilitate a flow of information, support intuitive ergonomic interaction, and encode culturally resonant meanings within the constraints of the packaging's material and structural logic.

Tactile codes are increasingly recognized within the interdisciplinary framework of packaging design not merely as ancillary sensory embellishments but as significant carriers of meaning that operate in dynamic interplay with visual and structural elements to shape holistic user experience. Embossed textures, soft-touch coatings, and weighted materials, each selected through deliberate material specification during the iterative phases of concept design, refinement, and production, communicate nuanced qualities such as perceived product quality, manufacturing care, and sensory pleasure, thereby functioning as semiotic resources that encode cultural associations prior to the consumer's direct engagement with the product itself.

To understand how tactile codes communicate, one must first understand the physiological mechanisms of touch perception. The human haptic system comprises two distinct but integrated subsystems: cutaneous perception (sensation from the skin) and kinesthetic perception (sensation from muscles, tendons, and joints) [5]. Cutaneous receptors, which respond to mechanical stimuli (pressure, vibration, texture), thermal stimuli (temperature), and nociceptive stimuli (pain), are distributed unevenly across the skin that explain topographical disparity which accounts for the privileged role of the fingertips in packaging evaluation. Kinesthetic receptors, located in muscles, tendons, and joints, provide information about limb position, movement, and force. When a user grasps, lifts, twists, or squeezes packaging, kinesthetic feedback communicates weight, resistance, compliance, and balance. Together, cutaneous and kinesthetic perception enable the comprehensive haptic evaluation of packaging attributes.

Tactile perception is not purely sensory but is mediated by memory and learning. Humans develop robust haptic memories that inform expectations and guide interpretation. When a user encounters a new package, they compare its tactile attributes against stored haptic memories, for example, this texture resembles the soft-touch finish of a premium electronic device, this weight suggests high-quality materials or this cap mechanism feels similar to child-resistant closures encountered previously. This haptic memory system has profound implications for packaging design. Designers can leverage established haptic conventions to communicate efficiently (e.g., a textured band around a cap signifies grip for twisting) or deliberately violate expectations to create surprise and differentiation (e.g., a luxury product packaged in unexpectedly soft, textile-like materials).

Material codes derive from the intrinsic physical properties of the substrate, whether paper, cardboard, plastic, glass, metal, or composite materials, with each material possessing characteristic attributes that communicate through direct sensory experience. Paper and paperboard, for instance, communicate warmth, naturalness, sustainability, and sometimes ephemerality, though the specific paper grade, a phenomenon supported by research demonstrating that paperboard packaging with higher fiber content is perceived as more environmentally friendly and authentic. Solid types of plastics, by contrast, communicate through an exceptionally wide range of tactile properties and suggest durability and functionality while flexible plastics suggest convenience, and soft-touch coatings derived from elastomers or rubberized surfaces evoke luxury and user-friendliness, yet plastics also carry increasingly salient negative associations related to environmental impact that profoundly affect consumer perception [6]. Glass communicates purity, preservation, premium quality, and heritage through its distinctive haptic signature, wherein weight, smoothness, and thermal properties converge. That kind of material remains the material of choice for products where purity and quality are paramount despite its higher cost and weight. Metal, encompassing both aluminum and steel, communicates strength, durability, modernity, and premium value through the coldness it imparts upon initial touch, thereby creating a distinctive sensory cue that, when combined with brushed or polished finishes, serves to further modulate associations of precision and craftsmanship. Textile materials, including woven and nonwoven fabrics such as cotton, linen, felt, or synthetic microfiber, communicate softness, tactility, and a sense of embodied comfort that distinguishes them from rigid substrates, with their fibrous structure inviting prolonged tactile engagement and evoking associations of warmth, craftsmanship, and artisanal quality, which has led to their increasing adoption in premium and sustainable packaging applications where haptic differentiation serves as a key competitive advantage.

The foregoing analysis of material codes reveals that tactile perception operates as a sophisticated semiotic system in which the physical properties of packaging substrates – ranging from the fibrous warmth of paper and textiles to the cold precision of metal and the weighty purity of glass – constitute a rich lexicon of haptic signifiers that consumers decode intuitively during product interaction. Each material category generates a distinctive sensory signature extending beyond mere physical sensation to encompass culturally mediated associations. This particular haptic vocabulary functions in concert with visual and structural codes to shape holistic user experience, demonstrating that tactile considerations cannot be relegated to an ancillary role in packaging design but must instead occupy a central position within the semiotic and structural logic of user-centered practice. As consumers increasingly seek authentic, multisensory engagement with products, the strategic orchestration of tactile materiality emerges as a critical determinant of brand perception, user satisfaction, and ultimately, commercial success.

Semiotic analysis reveals packaging not as mere container, but as a primary site of cultural meaning. In the contrasting cases of Hermès and Supreme, material choices – orange cardboard versus transparent plastic – function as autonomous sign systems that encode opposing worldviews. Hermès' textured box, with its embossed carriage and legacy-laden orange, signifies enduring craftsmanship, tradition, and quiet luxury, resonating with cultures that revere preservation. Supreme's flimsy bag, branded with a stark red-and-white logo, embraces

ephemerality, street authenticity, and the paradox of value in disposability. Where Hermès evokes old Europe and timeless class, Supreme embodies post-Fordist America and the cult of the signifier. Thus, long before the product is revealed, the packaging itself performs a semiotic act, demarcating boundaries of class, time, and cultural identity.

The theoretical examination of the semiotic and structural logic of packaging undertaken in this study suggests that contemporary approaches to packaging design necessitate a fundamental shift from a purely aesthetic paradigm toward an anthropocentric model in which functionality and communicative value operate in inseparable unity. Moving beyond the traditional visual approach, focused exclusively on formal appeal, enables packaging to be understood as a complex, multilayered interface that actively contributes to the formation of a holistic user experience.

The study establishes that the effectiveness of packaging is determined by the operation of a dual logic. Semiotic logic manifests through the capacity of packaging to convey utilitarian and symbolic meanings via a system of codes. As demonstrated in this work, colour functions not merely as an emotional backdrop but as a marker of categorical product affiliation with its interpretation varying according to cultural conventions and marketing strategies. Disruption of typographic coherence leads to fragmentation of the visual field and diminishes the functional utility of packaging. Finally, tactile codes, encompassing textural, material, and weight-related attributes, operate as an autonomous semiotic system grounded in the physiology of haptic perception and the phenomenon of sensory memory. The packaging foundation serves as a carrier of culturally entrenched associations, shaping quality assessment even prior to direct product use.

Structural logic, complementing its semiotic counterpart, determines the functionality of packaging as a tool of user-centered practice. In contrast to subjective aesthetic evaluation, structural logic entails objective design wherein form-giving is governed by ergonomic requirements and technological constraints.

As a result, effective packaging today constitutes not merely an "attractive wrapper" but a carefully constructed semiotic artifact endowed with a coherent structural organization. Understanding this dual logic enables designers to transition from intuitive pursuit of visual solutions toward the creation of functional, informative, and anthropocentric products.

References

1. Ding M. Application of visual elements in product paper packaging design: An example of the «squirrel» pattern / M. Ding // *Journal of Intelligent Systems*. 2022. P. 104–112.
2. Brown J. L. Colours, capsules and concept flavour names on cigarette packs appeal to youth in Mexico / J. L. Brown // *Journal of Johns Hopkins Bloomberg School of Public Health*, Baltimore, Maryland, USA. 2023. P. 16–22.
3. Bix L. Packaging design and development / L. Bix // *Journal of Michigan State University*, East Lansing, Michigan. 2009. P. 859–866.
4. Kovačević D. Applying graphic design principles on tea packaging / D. Kovačević // *Scientific journal of the University of Zagreb*. 2020. P. 571–574.
5. Lederman S. J., Klatzky R. L. Haptic perception: A tutorial. *Attention, Perception, & Psychophysics* / S. J. Lederman, R. L. Klatzky // *Cognitive Psychology*. 2009. 1439–1459 p.
6. Magnier L., Schoormans J. Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern / L. Magnier, J. Schoormans // *Journal of Environmental Psychology*. № 44. 2015. P. 53–62.