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The evolution of neuromarketing techniques and their impact on consumer behavior in high-end segment

brands of the fashion industry

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Introduction

Nowadays, in the global economy, significant growth has been witnessed in the adoption of various marketing and neuromarketing techniques, particularly within the fashion industry. The basics of neuromarketing can be rooted in the branding strategies of the 1840s and 1850s (Iloka & Onyeke, 2020). In the fast-moving consumer goods (FMCG) sector, standing out on crowded store shelves has become a pressing issue. An illustrative tale of this dilemma lies in P&G's laundry detergents. Introducing a bright and memorable design of their new detergent swiftly ascended to the top of sales charts within three months. It attracted customers because it stood out on the shelves among other detergents. This success encouraged other brands to use colors and designs to catch consumers' attention and compete effectively in the market (Han, 2023). Kellogg, in turn, began using neurobiological methods to improve sales and stay on top of consumers' minds. By analyzing brain activity patterns, Kellogg could identify which packaging elements elicited the most decisive response from consumers. Understanding this allowed Kellogg to optimize its packaging design to better appeal to its target audience and enhance brand recognition and loyalty (Brown, Keegan, Vigus & Wood, 2001).

Subsequently, this trend was embraced by Walmart, a prominent player in both the wholesale and retail sectors. Walmart integrated advanced neuromarketing methodologies into its operations, influencing its design aesthetics, color palette selections, and overarching merchandising strategies (Chen, 2023). Later another notable illustration of that time was the "Pepsi Challenge" in 1975, which was created to compare the tastes of Pepsi and Coca-Cola directly by having people do controlled blind taste tests. The findings from these tests were subsequently harnessed in advertising campaigns to bolster the promotion of Pepsi, underscoring the application of neuromarketing principles aimed at influencing consumer purchasing decisions at a neurological level (Barris, 2017). A bit later, neuromarketing entered the fashion industry as mass clothing production overshadowed handmade items. As a result, stores faced excess merchandise

on their shelves and the need to attract customers. Sales doubled in women's clothing stores when the scent of vanilla was introduced into the boutique. Scientists explain that smell is the most immediate of all senses: people do not analyze information from a particular scent but instantly give way to emotions and associations (Agarwa & Dutta, 2015). In France's fashion and luxury realm, Louis Vuitton was the first to delve into neuromarketing, utilizing color associations to attract clientele (Ruanguttamanun, 2014). The European market rapidly followed suit, with brands such as Roberto Cavalli and Hermes subsequently embracing neuromarketing strategies. Initially, marketers implementing neuromarketing techniques were unaware that their actions could be categorized under any specific terminology (Ariely & Berns, 2010). Until, the term "neuromarketing" was introduced by Bright House in Atlanta, USA, in 2002 after publishing the first article and sponsoring the first neuromarketing studies (Butler, 2008). In Europe, neuromarketing emerged around the same time as in the United States, roughly in the mid-2000s. However, while neuromarketing became widespread across various sectors in America, including the car industry, its adoption in Europe initially focused more on retail trade. European retailers were among the first to recognize the potential of neuromarketing techniques in optimizing store layouts, product placements, and promotional strategies to enhance customer experience and increase sales (Eser, Isin, & Tolon, 2011). In developed countries, marketing and neuromarketing techniques have been extensively employed for a few decades due to advanced technological infrastructure, higher consumer purchasing power, and competitive market landscapes. Moreover, companies in developed countries prioritize ethical marketing practices and corporate responsibility to align with the values of socially aware consumers and improve their brand image (Opara, 2009). In developing countries, traditional marketing methods still hold significant sway due to their broad reach and accessibility, especially in areas with limited internet penetration. However, with the technological growth and increasing sophistication of consumer insights, neuromarketing techniques are becoming more prevalent, presenting new opportunities for businesses to

reach new target audiences. Even during the 2020 pandemic, in response to widespread restrictions on physical movement and access to traditional retail spaces, marketers redirected their focus toward online platforms as a novel avenue for implementing neuromarketing strategies (Altynova, 2021). Presently, neuromarketing has attained peak levels of widespread adoption. Kazakhstan, in alignment with trends observed in more developed markets, actively implements such approaches. The first MEGA mall opened in Almaty in 2006, showcasing top-notch standards and being one of the first to use neuromarketing methods to make shopping more enjoyable and comfortable. Alongside MEGA, the country welcomed its first global brands. After the pandemic, people have become more attentive to hygiene and the preservation of personal space, prompting MEGA shopping mall to increase the size of some stores to ensure comfortable distancing and maintain the enjoyment of offline shopping. Viled is a prominent example of using neuromarketing techniques within a network of luxury brands and boutiques. Saks Fifth Avenue Almaty, established in 2012, is the sole luxury department store in Central Asia. Meanwhile, Astana boasts a unique luxury venue, Talan Gallery, which opened its doors to shoppers in 2019. This boutique actively adapts its design to consumer preferences and offers a blend of luxury, style, and exceptional service. (Talan Gallery, n.d.). While neuromarketing may have arrived in the Kazakhstani market later than in America, Europe, and other developed regions, Kazakhstan is now actively integrating diverse neuromarketing techniques into its fashion retail sector. With a commitment to meeting Western standards, the Kazakhstani market aims to elevate customer experience, refine sales strategies, and maintain a competitive edge in the fashion retail industry (Freeman & Low, 2007).

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Research Objectives

The main goal of this research is to observe trends and tendencies in consumer behavior within an industry influenced by neuromarketing techniques. Specifically, this study aims to discover the methods employed in Kazakhstan to enhance purchasing power among customers in the high-end segment brands represented in Kazakhstan, utilizing various neuromarketing instruments and strategies. Additionally, this research seeks to gain insights from consumers regarding their preferences and motivations for selecting specific fashion brands, what factors predominantly influence their purchasing decisions within the high-end segment of their favorite brands, and which shopping malls are perceived as more comfortable for visiting their favorite brand stores.

Hypothesis

H1: The interior colors and large space in the brand stores give more comfort to customers.

H2: Scents attract more customers to the brand store, creating a welcoming and memorable shopping experience.

H3: The specific layout, interior design elements, and choice of furniture attract more customers.

H4: The level of music volume and music style effectively impact the duration of in-store visits and purchasing behavior.

H5: A pleasant and welcoming atmosphere, along with friendly staff in brand stores, fosters brand loyalty and encourages customers to make purchases.

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Literature Review

Neuromarketing started when neuroscience discoveries met the study of consumer behavior. It was a key moment in marketing history when traditional methods met new brain science techniques to understand consumers better. The history of neuromarketing is traced back to the FMCG (Fast-Moving Consumer Goods) sector. The first brand to demonstrate results using this approach was Procter & Gamble, which started on this journey in 1837. Procter & Gamble revolutionized the marketing landscape by incorporating neuromarketing into their strategies. The brand pays careful attention to details, ranging from color choices to the strategic placement of products (Schuiling, 2000). After some time, by analyzing brain activity patterns, Kellogg could identify specific packaging elements, such as colors, shapes, and even text, that caused a strong consumer reaction. By understanding these neural responses, Kellog was able to strategically adjust its packaging design, making it more visually and emotionally attractive so that it more effectively attracts the attention of the target audience. This optimization has helped not only attract new customers but also strengthen brand loyalty among existing consumers (Krishnamurthi, 2022). After Kellogg's in 1962, Walmart came to neuromarketing to enhance its store layouts for better consumer engagement. Discovering that the brain consumes 25% of the body's energy, they emphasized sharp contrasts in their design to captivate shoppers effortlessly, thus making a significant contribution to the FMCG sector. Numerous insights were gleaned and tested, shaping the optimal layout based on consumer behavior and reactions (Wrona, 2014). As we commence this literature review, we delve into the origins, evolution, and key findings that have shaped the trajectory of neuromarketing, illuminating its profound impact on understanding consumer decision-making processes. By highlighting the crucial aspects of neuromarketing in today's context, we shed light on the various types of neuromarketing techniques shaping contemporary consumer insights and marketing practices.

Primary Data

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According to research conducted by Harvard University psychologists in the late 1990s, where Arndt Traindl and Bart Oeyman were recognized as key figures in its development. Later, neuromarketing began to take shape with the introduction of general methods like the ZMET (Zaltman Metaphor Elicitation Method) by Professor Jerry Zaltman. These methods, patented by Zaltman, have since become instrumental in understanding consumer behavior and have been widely adopted by major corporations, including Nestle, Coca-Cola, General Motors, Procter & Gamble, and Pepsi. As a result, Procter & Gamble has leveraged neuromarketing insights to establish corporate merchandising standards, dictating product placement strategies across various retail environments. Instructions specify optimal locations within stores, with products like Duracell batteries strategically positioned in high-traffic areas to maximize visibility and sales. Supermarkets receive particular illustrations of product layouts specifying how much space each product should take on the shelves.

According to Philip Kotler, over 90% of our thoughts and emotions happen on a subconscious level and it shows how important it is to understand these hidden processes that influence consumer behavior.

Kotler describes the term "neuromarketing" as a type of marketing that uses various stimuli affecting the human brain to evoke desired actions. Since we are still talking about marketing, just with the prefix "neuro" refers to the brains of consumers, market partners, employers, and job applicants. These stimuli can include visual, olfactory, tactile, gustatory, memory-related, and social skills of individuals and their values (2008).

The concept of neuromarketing carries a multifaceted meaning, and there is no consensus regarding its definition. According to the book "BrainFluence," neuromarketing encompasses the study of consumer behavior and various strategies based on it. It synthesizes brain scanning results and other related technologies such as biometrics or eye-tracking, also known as eye tracking. Regardless of the

technology used, neuromarketing implies understanding how the human brain functions and effectively utilizing this knowledge to enhance activity efficiency (Dooley, 2012).

In the book "Neuromarketing" by Akulich, it is stated that neuromarketing focuses on creating a positive impact on consumer brain activity, and this method applies to virtually any individual. Moreover, neuromarketing contributes to product/brand development by tapping into the ability to reflect the subconscious needs of potential consumers (2021).

Stephen J. Genco asserts that neuromarketing, much like any marketing research endeavor, employs methods and approaches rooted in the findings of scientific studies on the brain and its responses. Neuromarketing is geared towards addressing the same issues as any market research: optimizing budget expenditure while effectively communicating value propositions and driving profitability (2013).

In Patrick M Georges's work, neuromarketing represents a comprehensive science rooted in neurobiology, primarily focusing on exploring human intelligence and unconscious brain reactions. Neuromarketing has evolved from technical capabilities inspired by the medical sector and its research into epilepsy, Parkinson's disease, and other cranial and brain injuries (2014).

Neuromarketing, as described in the book "Ethics and Neuromarketing," is portrayed as a burgeoning discipline that intertwines consumer behavior, neurobiology, economics, and psychology. According to the authors, the full potential of neuromarketing has yet to be realized, given that the science has only relatively recently gained recognition globally, thus necessitating further exploration and study (Thomas, Pop, Iorga & Ducu, 2017).

Neuromarketing is built upon the latest insights and discoveries in brain sciences, offering a wealth of knowledge that opens up numerous new perspectives on understanding consumer behavior. Authors

emphasize that the consumer brain is drawn to both the novel and the familiar, often preferring simplicity over complexity, and it is upon these principles that neuromarketing is founded (Zurawicki, 2010). Neuromarketing finds application across diverse industries, yet the nuanced interpretation and deployment of its techniques exhibit notable variations.

In the FMCG (Fast Moving Consumer Goods) sector, a range of neuromarketing instruments is employed to boost consumer engagement and stimulate purchasing behavior. Audio marketing serves as a key component of its strategy. As per studies published in the Journal of Advertising and the Journal of Brand Management, music plays a substantial role in shaping consumer behavior and brand image. In accordance with findings from these studies, music has been shown to evoke emotions in consumers, thereby influencing their purchasing decisions. Furthermore, research conducted by the University of South Australia supports this notion, demonstrating that playing upbeat music in grocery stores can lead to both increased time spent by customers in the store and higher spending amounts (Saha, 2018). Packaging design and color schemes play a crucial role in capturing consumer attention and conveying brand messaging. Neuromarketing techniques help FMCG brands optimize their packaging designs by identifying colors, shapes, and visual elements that resonate with target audiences and trigger positive emotions. Store layout and product placement strategies influence the flow of consumer traffic and optimize product visibility. Neuromarketing studies help FMCG retailers understand how layout variations impact consumer navigation and purchasing behavior, allowing them to design store layouts that maximize sales (Raju, 2022).

The retail sector, especially fashion retail, actively employs neuromarketing techniques. Among these, audio marketing is a fascinating tool that goes beyond mere background music. It creates a unique musical concept that can significantly influence consumer behavior. For instance, in the retail sector, classical or French music has been found to promote wine sales more effectively than contemporary

tunes. Children's songs can attract kids to toys, while the sound of breaking chocolate can ignite appetite and the desire to buy chocolate (Nufer, 2022). In both fashion retail and general retail, aroma marketing is a powerful tool. In fashion retail, an aroma is typically associated with a brand for a significant period, often 3-7-10 years. Changing it would undermine its main purpose - to intuitively identify the brand by scent. The aroma doesn't have to appeal to everyone; it just shouldn't be irritating (Law, 2023). The key is for it to remain consistent, creating a unique brand experience that customers can associate with the scent. Aroma marketing in retail aims primarily to stimulate appetite and increase purchasing activity. The allure of the scent of fresh pastries, juicy fruits, or coffee, which is often used to scent grocery stores, is hard to resist. Modern sensor technologies can do even more. Lighting also plays a crucial role in retail (Nufer, 2022). Intuitively, we know that light creates an atmosphere, affecting shoppers' moods and purchase desires. Spotlights are a convenient choice for medium and small retailers. As for lighting type, LEDs have long been the "gold standard" in retail. They increase business profitability by consuming less electricity and requiring minimal maintenance (Law, 2023). Additionally, LED models allow for choosing or adjusting color temperature, brightness, direction, and other light characteristics, catering to various types and scales of retail spaces. In fashion retail, lighting also has a significant role and operates on the following principles:

- Window display lighting: to draw customers into the store;

- General and decorative store lighting: to make customers comfortable while shopping;

- Accent lighting: to showcase products in the best light;

- Fitting room lighting: to encourage purchases (Lee, 2021).

While the authors provide varying definitions of neuromarketing, the techniques used remain consistent.

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Several types of neuromarketing target specific sense organs, each impacting consumer behavior in distinct ways.

1.   Audio-marketing

Audio marketing, also known as using background music to influence consumer behavior, represents a modern strategy in commerce. The first person to employ background music in public spaces was American inventor George Owen Squier, who founded Muzak Holdings. He used calming compositions in the elevators of New York skyscrapers to reduce passengers' anxiety and fear (Abolhasani, Oakes, & Oakes, 2017).

The widespread adoption of audio marketing occurred in the 1980s when psychologists provided evidence of the direct impact of music on consumer behavior. It contributed to forming brand affinity, increasing time spent in stores, and encouraging additional purchases (Abolhasani et al., 2017).

2.   Aroma-marketing

The modern prototype of scent-based advertising as a strategic resource in business emerged during the twentieth century. One of the earliest documented instances of aroma marketing dates back to the 1920's (Waldhauserova, Nagyova, 2023). The story goes that a New York City department store, Macy's, used a subtle floral fragrance to enhance the shopping experience during the holiday season. The idea was to create a pleasant atmosphere, encouraging customers to linger longer and purchase more. The fragrance was a hit, as shoppers responded positively to the inviting scent wafting through the store (Bercik, Neomaniova, Mravcova & Galova, 2021).

3.   Lighting

Lighting is crucial in neuromarketing, a strategy to influence consumers' subconscious to encourage purchasing behavior. Studies indicate that lighting significantly impacts individuals' emotional states and actions in retail environments and stores (Singh & Kumar, 2018).

For instance, bright and excellent lighting can foster an atmosphere of energy and movement, effectively capturing attention and prompting quick purchases. Conversely, soft and warm lighting can evoke feelings of comfort and coziness, encouraging shoppers to linger in the store and enhancing their positive perception of the brand (Rodrigo, Orlando & Rueda, 2021).

4.   Color-marketing

Faber Birren, an American color theorist and author, made significant contributions to the study of color psychology, especially regarding its impact on branding. Through his extensive research and writings in the mid-20th century, Birren elucidated the psychological and emotional effects of color, highlighting how different colors evoke specific emotions and associations in individuals (Ciotti, 2014). His work provided valuable insights into how businesses could strategically use color in their branding efforts to enhance brand recognition, influence consumer perceptions, and ultimately drive purchasing behavior (Shi, 2013).

5.   The arrangement of products

The arrangement of products within a store plays a crucial role in neuromarketing, a strategy that leverages insights into brain function and consumer psychology to devise more effective marketing approaches. Proper merchandise placement can significantly impact consumer behavior, prompting purchases (Genco, 2015).

Highly appealing or popular items are typically positioned at eye level or within the consumer's direct line of sight to ensure immediate notice and encourage impulse buying. Products may also be grouped by category or showcased on unique displays and shelves to draw attention to promotional offers or new releases. Moreover, the psychology of product placement may involve strategically locating items at checkout counters, designing store layouts to guide customer flow, and managing the color and lighting scheme to create a desired ambiance (Hedda, 2018).

6.   Tactile sensations and texture

Tactile sensations involve the sense of touch, encompassing the physical interaction with surfaces and textures. During the late 20th and early 21st centuries, Aradhna Krishna was among the first to conduct extensive research on sensory marketing, including the influence of touch on consumer behavior (Lopez-Cortes, Jimenez-Marin & Bellido-Perez, 2019). Her work has highlighted how tactile sensations can influence perceptions of product quality, brand image, and purchase intentions. Additionally, researchers like Charles Spence, a professor of experimental psychology at the University of Oxford, have made a considerable contribution and explored the multisensory aspects of consumer experiences, including the role of tactile stimuli in shaping perceptions and preferences (Yamada, Okamoto & Nagano, 2013). Various technologies and methods are employed to investigate the buying patterns of customers using neuroscience and scientific lenses:

Functional magnetic resonance imaging, or fMRI, is a type of MRI that measures the neural activity of the brain or spinal cord. MRI is commonly considered to have been founded in 1973 when American chemistry professor Paul Lauterbur in 1974 authored a paper in the journal "Nature," which he titled "Image Formation by Induced Local Interactions: Examples Employing Nuclear Magnetic Resonance." The first image of a living mouse's cross-sectional anatomy was obtained. It works by detecting changes in blood flow and oxygen levels linked to neuronal activity. When a brain region is active, blood flow to that area increases, along with changes in oxygen concentration. These changes are captured by the scanner, producing images of brain activity. fMRI allows researchers to observe the brain at work without external intervention, revealing which brain structures are involved in specific tasks and how they interact, conveying information (Rana, Varan, Davoudi, Cohen, Sitaram & Ebner, 2016).

Eye tracking is a technology that monitors eye position. It is also known as gaze tracking or gaze point tracking. According to Holmqvist et al. (2015), Edmund Huey first introduced it in 1889. In this system, a

device resembling a contact lens can directly interface with the eye to compute the subtle shifts in the eyeball's position. This technology aids marketers by revealing which details capture consumers' attention and which go unnoticed. It generates a fixation plot and a heatmap, indicating the direction of gaze: hot and cold spots. Additionally, eye tracking identifies unconscious reactions to visual elements, enabling a fresh approach to testing advertisements, product packaging, and retail spaces. Research findings using eye-tracking technology facilitate analysis and planning for changes. They help understand what prevents brands from achieving their objectives (Punde, Jadhav & Manza, 2017).

The Implicit Association Test (IAT) represents an additional tool utilized in neuromarketing for evaluating cognitive biases by gauging the intensity of correlation between objects and characteristics. In 1995, social psychologists Anthony Greenwald and Mahzarin Banaji suggested that implicit and explicit memory could be applied to social constructs (Ratliff & Tucker, 2024). One of the main advantages of this technology is overcoming masking; in other words, the Implicit Association Test can reveal attitudes toward presented stimuli and elicit automatic associations even for subjects who consciously prefer not to demonstrate such inclinations. This method is cost-effective and easy to use, and the data obtained through its use are readily amenable to processing and analysis (Ratliff et al., 2024).

Implicit Reaction Time Tests (IRT) are a method of psychological testing used to explore unconscious preferences, associations, and relationships among individuals, which was developed in the late 90s by professors Anthony Greenwald of Washington University and Professor Mahzarin Banaji of Harvard University. They are based on the idea that people may have hidden biases and preferences that can manifest in their behavior and reactions but may not be consciously acknowledged by the subjects themselves. An essential aspect of implicit reaction time tests is that participants must be informed about which specific associations or preferences are being investigated. This allows researchers to gather data on the unconscious aspects of participants' mental processes (Calvert, Fulcher, Fulcher & Foster, 2014).

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Electroencephalography (EEG) is a method used in neuroscience to study brain activity. The first human EEG recording was obtained by the Austrian psychiatrist Hans Berger (1873-1941) in 1928. He also proposed to call the recording of brain biopotentials "electroencephalogram" (EEG) (Kumar & Bhuvaneswari, 2012). It works by detecting and amplifying the weak electrical signals produced by the brain, which we often call brainwaves. These signals are crucial for communication and coordination between different brain parts. In neuromarketing research, EEG is commonly employed to measure cognitive functions like attention, arousal, and emotional responses, which helps predict consumer behavior. The latest EEG equipment can capture brainwave activity with remarkable speed, providing detailed insights into how the brain responds to marketing stimuli, surpassing other temporal resolution measurement techniques (Soufineyestani, Dowling & Khan, 2020). EEG offers three primary methods for studying brain activity in neuroscience: hemispheric asymmetry analysis, event-related potential analysis, and brainwave frequency analysis. The latter examines brainwaves' various speeds (frequencies) to decode brain activity. In the field of neuromarketing, brainwave frequency analysis is predominantly favored (Soufineyestani et al., 2020).

Furniture can profoundly impact people's emotions, moods, and behavior. The furniture's color, shape, and texture can evoke various emotional responses. For instance, woolen and soft surfaces may elicit coziness and comfort, while smooth and shiny surfaces can create an impression of modernity and luxury. Placing furniture in a space is also crucial for creating a specific effect on people. Well-organized spaces can foster feelings of comfort and friendliness, whereas cluttered or untidy spaces may evoke a sense of unease and disorganization (Gurgu, Gurgu & Tonis, 2019).

The height of ceilings in retail stores and shopping centers can influence consumer behavior and spatial perception. Elevated ceilings often create a sense of spaciousness and grandeur, enhancing the store's appeal to shoppers. This perception of openness may encourage prolonged stays and deeper exploration of merchandise. Additionally, ceiling height can evoke various emotional responses. For instance, high

ceilings tend to engender feelings of freedom and comfort, whereas lower ceilings can foster a sense of coziness and intimacy (Levy, Zhu, 2007).

The acoustic environment influences our perception of space, emotional reactions, and purchasing behavior. Good sound insulation can create silence and calmness, promoting relaxation among shoppers and establishing a positive emotional background. Moreover, a low background noise level allows customers to focus better on products and pay attention to their purchases (Li, Moog, Murashko, & Stadelhofer, 2017).

Scientific research shows that different colors can evoke various emotional reactions in people. For instance, red is linked with vitality and fervor, blue with reliability and serenity, and green with naturalness and assurance. A color palette can enhance brand perception, draw attention to a product, and influence purchase decisions when used correctly. However, the effects of colors can be subjective and depend on cultural and individual factors. Therefore, it is imperative to carefully consider the context and target audience when deciding upon a color scheme for marketing materials and product design in academic discourse (Khalil, Shah & Ali, 2020).

Virtual Reality (VR) and Augmented Reality (AR) engender immersive encounters that replicate real-life situations. The notion of VR traces its origins to the mid-20th century, marked by the development of the inaugural operational VR system dubbed the "Sword of Damocles" crafted by Ivan Sutherland and his protégé Bob Sproull in 1968 (Russo, Bilucaglia & Zito, 2022). Neuromarketers use VR/AR simulations to test product prototypes, retail store layouts, or advertising campaigns in realistic settings. These technologies offer a controlled yet immersive way to observe consumer responses and preferences (Russo et al., 2022).

Facial coding is a technique used in neuromarketing and psychology to analyze and qualify facial expressions and infer emotional states. The Facial Action Coding System (FACS) serves to categorize

human facial expressions, originating from the pioneering work of Paul Ekman and Wallace Friesen in

1978 (Dragoi, 2021). Researchers utilize specialized software and high-definition webcams to conduct

facial coding studies in neuromarketing. These studies involve observing the spontaneous facial

expressions of individuals as they engage with various stimuli, such as browsing through an online

catalog, watching videos, smelling perfumes, or tasting products. By analyzing these facial expressions,

researchers gain insights into consumers' emotional responses and subconscious reactions to marketing

stimuli, which are relatively affordable technology (Hofling & Alpers, 2023).

These are just a few examples of the diverse range of techniques employed in neuromarketing research.

Each method offers unique insights into different aspects of consumer behavior, helping marketers better

understand and influence purchasing decisions.

Luxury fashion industry

In France, neuromarketing techniques debuted in the luxury goods industry, with the prestigious brand

Louis Vuitton leading the charge. Following the release of their perfume in 1927, the Louis Vuitton team

hosted an event where guests sampled the new fragrance (Cunha & Reis, 2023). They observed guests'

profound reactions to specific scents and sounds, forming strong connections with particular feelings and

emotions. This experiment motivated Louis Vuitton to explore aroma marketing further and use it in

different parts of their business. They started using how consumers felt about smells to make better ads

and products, which helped them become even stronger in the luxury market. Furthermore, Louis

Vuitton's adoption of aroma marketing techniques underscored the brand's commitment to innovation and

understanding the deeper psychological drivers behind consumer preferences. By leveraging insights

from neuroscience, the brand could tailor its marketing strategies more effectively, resonating with its

target audience on a subconscious level (Nagasawa, 2009). The French luxury brand Hermes

International S.A., founded in 1837, became the first brand to introduce neuromarketing methods in

Europe. Hermes uses various subtle approaches to neuromarketing to change the perception of consumers and involve them in the game, the rules of which are set by Hermes. Similar to the halo effect, Hermes Birkin or Kelly bags serve as anchors, enabling consumers to acquire ties, scarves, or watches to experience the gratification of being associated with an exclusive brand (Dooley, n.d.). Given that prices for Birkin bags starting at ten thousand dollars are firmly ingrained in the minds of consumers, they would be willing to pay four hundred dollars for a scarf that could be quickly purchased for twenty dollars, if not for a specific brand. So Hermes uses this concept to get people to buy their high-yield products at a premium price. Hermes carefully creates a luxurious atmosphere in all its boutiques, applying a closed entry policy to guarantee each customer a personalized service with minimal interaction with others (Cruz, 2016). Every element in the Hermes boutique is designed to radiate luxury: from consultants putting on white gloves before handing over a bag, to carefully selected neutral shades of brown, beige, and black in the interior, which indicates the active use of color marketing techniques in their work. These elements highlight the products presented, creating an atmosphere that demonstrates the brand's commitment to luxury. Hermes actively uses aroma marketing using diffusers in its stores with calm and translucent woody aromas with hints of greenery, warm incense, and nutty sweetness (Alvino, Pavone, Abhishta, & Robben, 2020).

Roberto Cavalli, founded in 1970, is a pioneering figure in the Italian fashion industry, as it is one of the first European brands to introduce neuromarketing techniques. Based on the results of neuroimaging, the brand has changed the color palette to more restrained tones and improved design elements so that they better match the neurological reactions of consumers. In their color marketing technique, they chose colors and animal patterns that evoked positive emotional reactions and increased visual appeal (Cai, Wu, Zhang, & Cai, 2023). This research-based approach has also influenced the presentation of the brand's products in stores. After analyzing the data on visual perception, Roberto Cavalli rebuilt the storefronts of

his stores in order to optimize visual attention and apply such a neuromarketing technique as an arrangement of products. They strategically placed high-margin or flagship products in the places where consumers showed the greatest visual interest. Regarding the store's design, the brand used biometric data to assess emotional engagement and adapt the store's design accordingly. Changes have been made to lighting, which has become more neutral, as well as to audio marketing, starting to use modern, trendy music and spatial layout to make shopping more exciting and emotionally appealing to consumers (Kim, & Sullivan, 2019).

The United Kingdom witnessed the early stages of neuromarketing implementation in the luxury industry, with Burberry among the firsts. In the early 2000s, when Burberry faced the challenge of adapting its brand to a younger audience, it came to color marketing (Yan, 2023). The company lost appeal among youth and inspiration-seeking consumers despite its premium brand status. Their management used neuromarketing to understand its audience's emotional reactions and preferences, especially in youth culture. Conducted research to determine which colors and designs would appeal to the target audience. As a result, the company created more modern and unique marketing campaigns and products, regaining its status and allure in the luxury industry. This strategic approach solidified Burberry's reputation as a visionary brand in the fashion industry and paved the way for other English brands to explore the transformative potential of color marketing. However, every luxury brand nowadays uses neuromarketing to delve into their customers' subconscious desires. By studying elements like scents, visual effects, sounds, and more, these brands can create experiences that deeply connect with their clientele on an emotional level (Shen, Li, 2023).

Secondary Data

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According to Harvard University's research on neuromarketing in the FMCG sector, aimed at strengthening emotional bonds with consumers through a multi-channel approach, personalized marketing initiatives have fostered strong connections between brands and customers, leading to high brand loyalty and increased sales. In accordance with PwC's investigation into neuromarketing in the fashion industry, which studied consumer behavior and responses to various neuromarketing techniques, the potency of EEG and eye tracking in decoding consumer preferences and decision-making processes has been revealed, particularly noting the increased consumer engagement and loyalty observed in luxury brands implementing such strategies. Stanford. Stanford University's exploration of technological innovations in neuromarketing for the fashion realm, particularly the integration of VR and biometric sensors, underlined the transformative potential of VR in creating captivating brand experiences that resonate emotionally with consumers. Additionally, biometric sensors emerged as invaluable tools, offering real-time insights into consumer emotional and cognitive reactions through measurements such as heart rate and skin conductance. Collectively, these academic innovations illuminate the great potential of neuromarketing across diverse industries, from FMCG to fashion, underlining its capacity to create lasting connections with consumers through tailored strategies and innovative technologies.

According to Deloitte's "Customer-centric shopping experience through neuroscience" study, which introduces an innovative method for gauging implicit design perception via neuroscience, eye-tracking technology tracks a person's gaze, pinpointing critical areas of interest pivotal for analysis across offline and online platforms. This approach makes refining the retail concept and enhancing its efficacy by measuring emotional and cognitive responses in offline settings possible. The study emphasizes that design elements within a store significantly influence customer satisfaction and purchasing behavior, with neuroscientific data serving as a conduit between customer expectations and real in-store experiences. This enhances our grasp of their preferences and needs, addressing product and service offerings gaps.

Additionally, Deloitte's study on "Sales Strategies of the Future - Unveiling Customers' Unconscious Buying Behavior through Neuroscience" employs neuroscientific methodologies like electroencephalography and eye tracking to delve deeper into the factors shaping buyer perceptions and behaviors within brick-and-mortar stores. Data garnered through electroencephalography aids in unraveling consumers' subconscious emotions and cognitive processes, while strategically positioning branded displays near checkout counters enhances the implicit appeal of products. Placing displays at crucial junctures in the purchasing journey amplifies their effectiveness in influencing shoppers, fostering more positive perceptions at critical stages of the buying process.

Methodology

In the current paper, a mixed-methods approach will be used, using both qualitative and quantitative methodologies. For the quantitative data collection, a survey will be conducted using a structured questionnaire comprising approximately 20 questions. This questionnaire aims to identify the customer profile, their insights, and behaviors related to the research objectives. The sample size for the survey will be at least 100 respondents. To ensure a comprehensive representation, participants will be selected from both big and regional cities. The questionnaire will consist of three main categories: demographics, services consumed, and attitudes toward neuromarketing. The demographics section will collect basic information about respondents including age, gender, and income level, while the services consumed section will identify their purchasing behaviors. The attitude section will measure their perceptions and preferences regarding neuromarketing in the fashion industry. Incorporating diverse samples from different geographic locations and demographic groups will yield a more impartial and thorough comprehension of customer perceptions and behaviors pertaining to the research objectives. For the qualitative segment of the research, in-depth interviews will be employed to collect insights. The focus

will be on engaging industry players, including brands and experts. Industry experts from fashion retail and shopping retail will be interviewed, holding top managerial positions with extensive experience. They will share insights based on their professional backgrounds. The questions will vary from structured to semi-structured and unstructured, tailored to each expert's background.

The two current techniques will additionally use observations and focus groups in selected cities and stores. Three focus groups will be organized, each consisting of 10 participants, to discuss consumer experiences, emotions, and perceptions related to high-end fashion brands. Participants will be recruited through various social networks and forums dedicated to fashion. To ensure a diversity of opinions, participants will be selected based on demographic data, including socio-economic status, age, gender, and level of interaction with high-end fashion brands. Focus groups will be held online to bring together people from different major cities such as Astana, Almaty, Karaganda, and Shymkent. As part of the qualitative research for the focus group, both open and closed questions concerning the fashion industry and the personal views of the focus group participants will be presented.

Specific fashion malls like Tallan Gallery and Esentai Mall will be chosen for observation to understand client interactions with luxury brands. The objective is to gain insights into different generations, segments, and target audience groups to understand their attitudes and behaviors toward neuromarketing. The main purpose of observation is also to determine the initial reaction of the buyer before entering the store, to determine the points of maximum customer interest in the trading floor, and the points of ignoring. To date, such brands as Dolce & Gabbana, Valentino, Celine, Balenciaga, and Louis Vuitton are known.

Research Findings and Analysis

A total of 112 individuals took part in the research, with the distribution of gender and age shown in

Diagram 1 and Diagram 2. The questionnaire included 20 closed-ended questions and one open-ended

question, drawing participants from various cities and different age groups to ensure broad representation.

Therefore, the participant group included 90 females and 22 males. This diversity in the demographic

profile of the respondents allowed for a comprehensive and representative analysis of the data,

considering a wide range of preferences and perspectives.

Diagram 1. Distribution of respondents by sex.

Gender

Male
19.6%

22

90

Female
80.4%
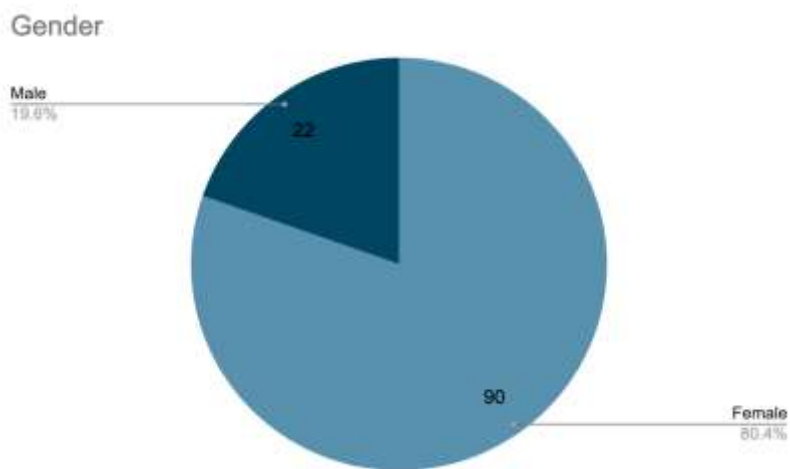
Diagram 2. Distribution of respondents by age.
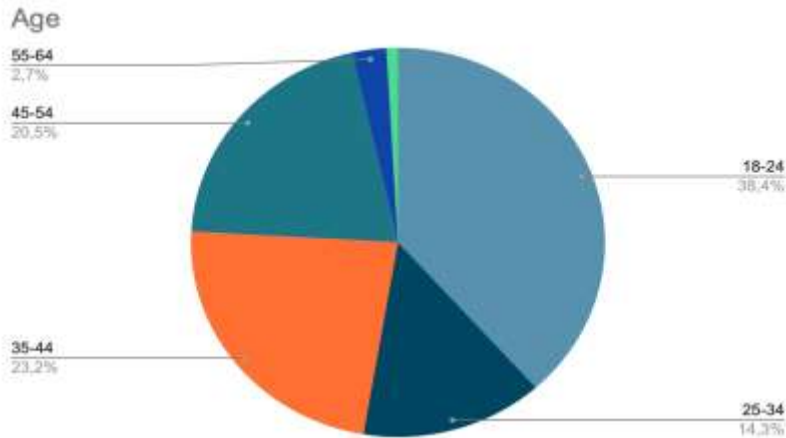
The breakdown of respondents in Diagram 3 includes participants from major cities such as Almaty, Astana, Karaganda, Aktobe, and several others, contributing to a geographically diverse sample. Notably, Astana, Almaty, and Karaganda emerged as the cities with the highest number of respondents, which suggests these urban centers are key areas of interest for the study. This diverse city representation helps to understand regional variations and ensures that the study reflects a wide array of urban experiences and opinions within Kazakhstan.

Diagram 3. Distribution of respondents by city in Kazakhstan.
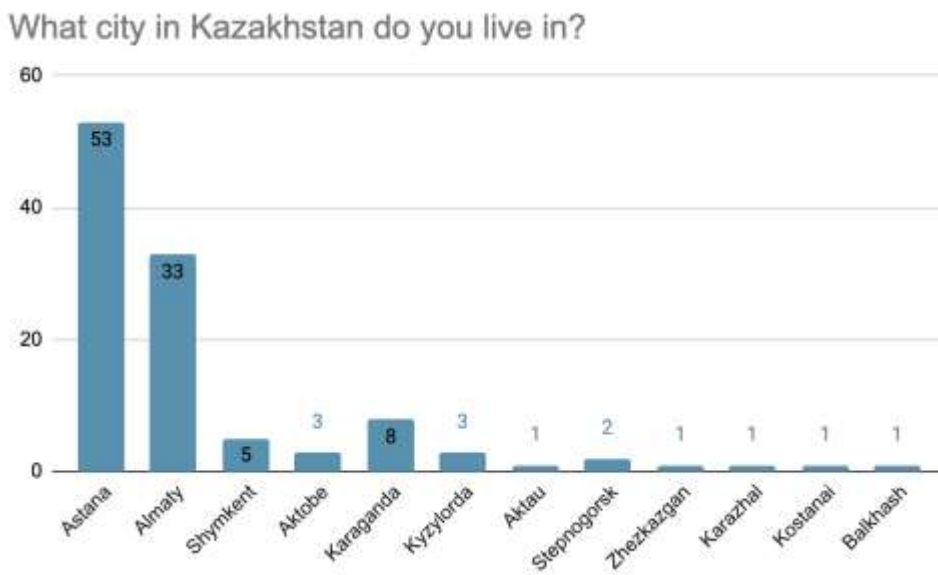
The evolution of neuromarketing techniques and their impact on consumer behavior in high-end segment brands of the fashion industry

Diagram 4 illustrates the distribution of respondents based on their salaries. This enables us to analyze respondents with varying income levels and identify patterns in their purchasing habits. The average earnings of our respondents range from 250,000 to 450,000 tenge. This range indicates the typical income level within our surveyed population and provides valuable insights into the socioeconomic status of our target demographic.

Diagram 4. Distribution of respondents by income levels.
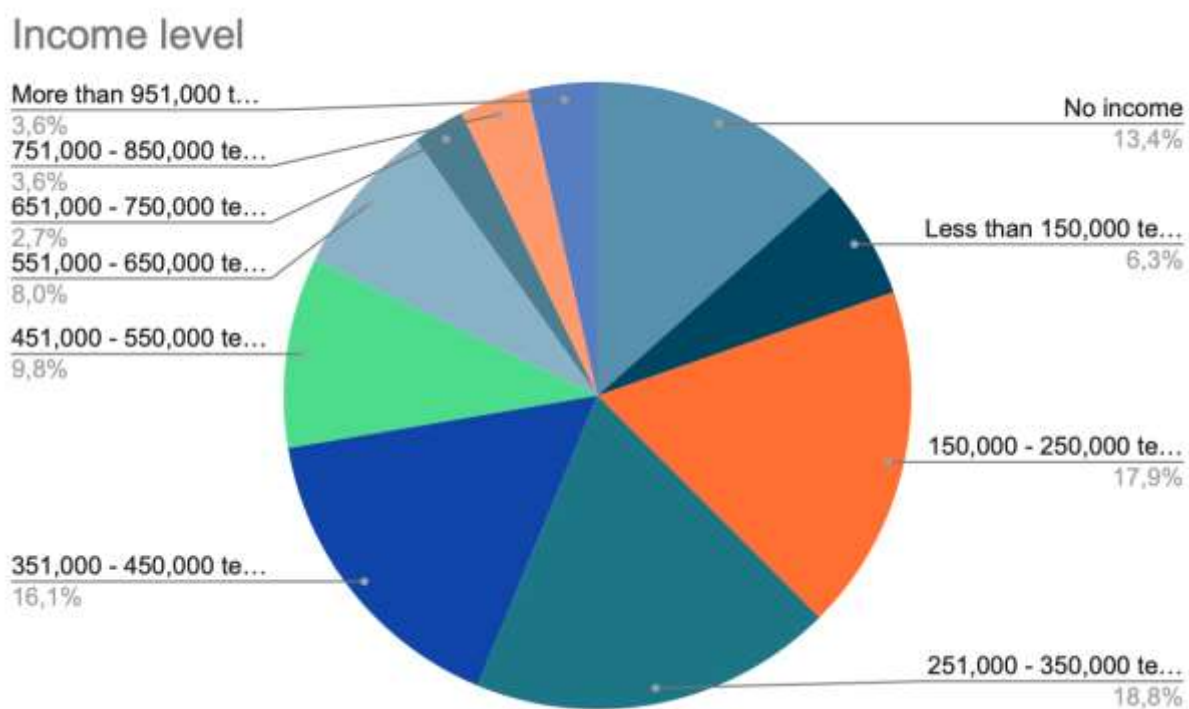
The vast majority of the respondents are students, comprising 28.6% (32 individuals). A slightly smaller proportion either work full-time, accounting for approximately 21.4% (24 individuals), or are employed in corporations, also at 21.4% (24 individuals). A smaller subset of our respondents are freelancers, constituting 11.6% (13 individuals). Merely 8% (9 individuals) are business proprietors. The remaining 9% are distributed as follows: the unemployed - 2.7% (3 individuals), while the remaining participants opted not to respond, accounting for 6.3% (7 individuals).

The data in diagram 5 on shopping preferences reveals that 47.4% of consumers prefer a combination of different shopping methods, highlighting the demand for flexible retail experiences. Online shopping remains a significant choice, with 15.8% preference, indicating a shift towards digital platforms. Traditional shopping centers are preferred by 17.5% of participants, underscoring the ongoing relevance of physical stores. Brand-specific stores and outlet centers attract fewer consumers, with 7.9% and 2.6%, suggesting that broader shopping formats are more influential in consumer choices. This diversity in shopping preferences underscores the importance of omnichannel strategies for retailers.

Diagram 5. Distribution of respondents by type of shopping preferences.
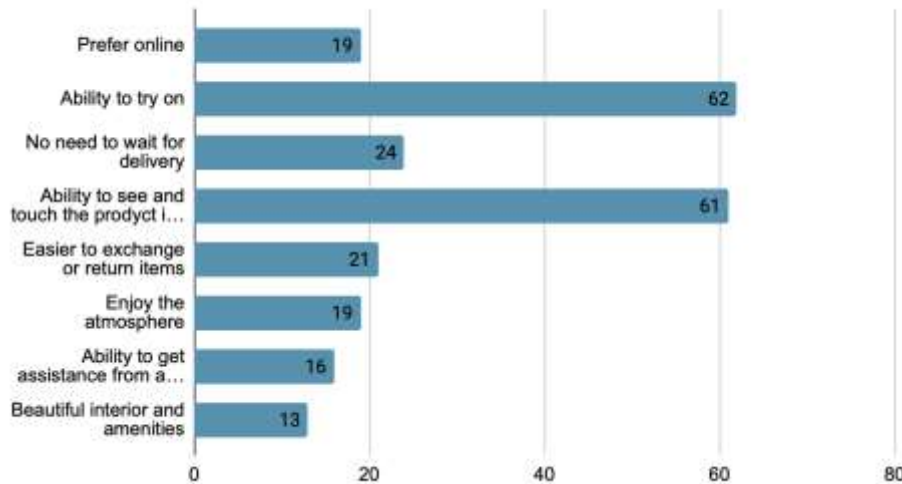

What type of shopping do you prefer?

Outlet centers 2.7%
Branded stores 8.0%
Shopping malls 17.9%
Online shopping 14.3%
Visiting stores and b... 8.9%
Combination of onlin... 48.2%
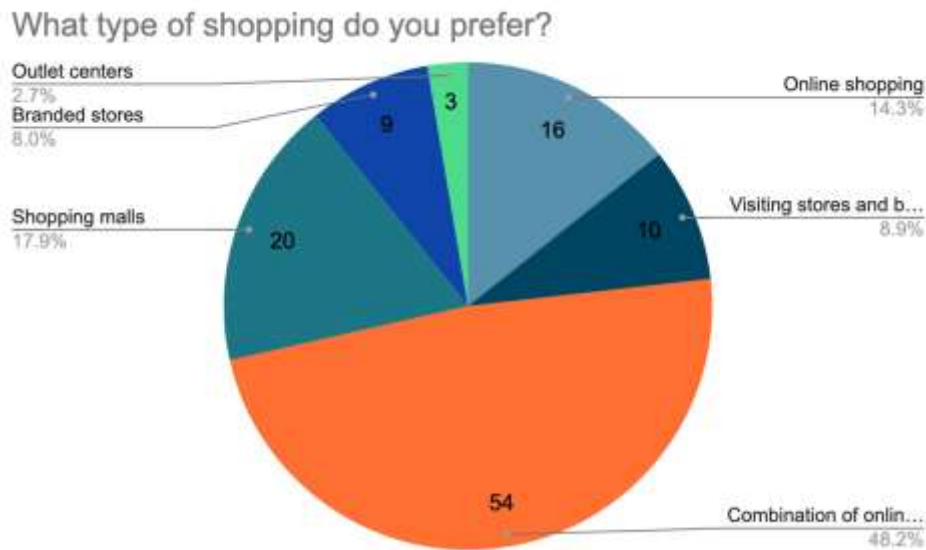
Diagram 6 illustrates by what characteristics respondents prefer offline shopping instead of online. The decisive factors are "the opportunity to try on" - 55.4% and "the opportunity to see/touch" - 54.5%.

Diagram 6. Distribution of respondents by reasons characteristic of their choice of offline shopping.

Why do you prefer offline shopping?

Prefer online	19
Ability to try on	62
No need to wait for delivery	24
Ability to see and touch the prodyct i...	61
Easier to exchange or return items	21
Enjoy the atmosphere	19
Ability to get assistance from a...	16
Beautiful interior and amenities	13

Our survey participants were also asked to indicate their favorite shopping mall, where they could choose

from several options provided. The majority favored Mega Silk Way shopping center, selecting it 63

times. Following behind were Keruen, chosen 25 times, Dostyk Plaza with 24 mentions, and Mega Alma-

Ata with 19 selections. Less popular among respondents were Esentai Mall (15 mentions), Tallan Gallery

(11 mentions), and Shymkent Plaza (7 mentions).

According to Diagram 7, the majority of respondents prefer to buy clothes once every few months - 33%,

a slightly smaller proportion of respondents buy things once a month - 27.7%. The rest of the respondents

buy clothes once every six months - 18.8%, while others several times a month - 14.3%. Only 5.4% of

respondents buy clothes once a year.

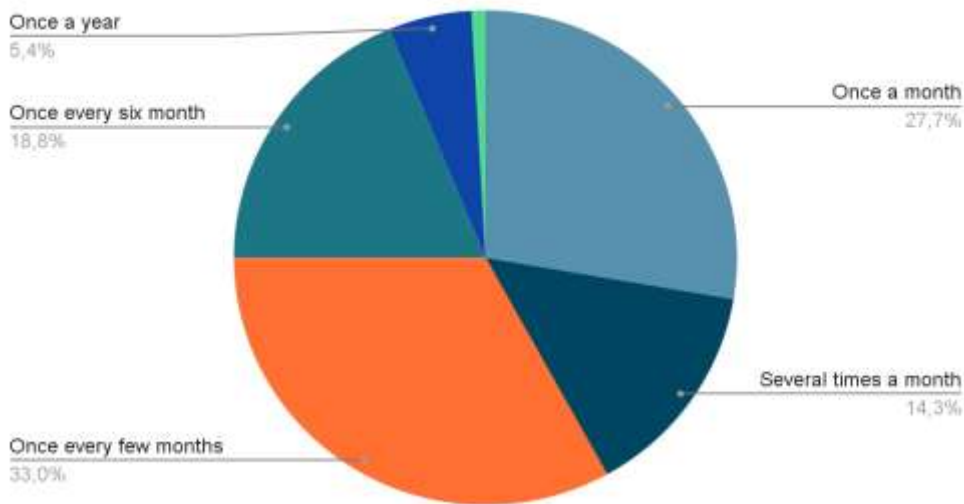*Diagram 7. Distribution of respondents by frequency of shopping.*

Diagram 8 shows the distribution of monthly shopping expenditures among respondents. The largest

group, comprising 43.8%, spends between 50,000 to 150,000 tenge, indicating that most consumers fall

within a moderate spending range. The frequency of higher expenditures decreases progressively, with

only small percentages spending above 550,000 tenges and no expenditures recorded over 750,000

tenges. This data suggests a significant concentration of consumer spending in middle economic

segments.

*Diagram 8. Distribution of respondents by expenditure on shopping.*

How much do you spend on clothing purchases?
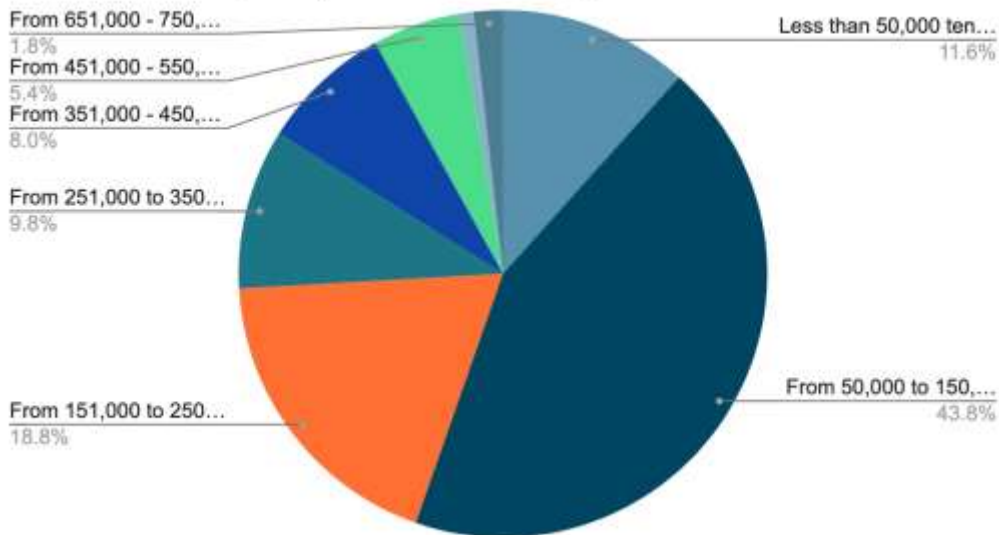
The attitude towards the in-store atmosphere was distributed among respondents as follows (Diagram 9):

for the majority, the atmosphere overall plays a significant role - for 50.9% of respondents it is important,

and for 40.2% of respondents it is moderately important. Meanwhile, 8.9% of respondents consider the

atmosphere to be not particularly important.

Diagram 9. Distribution of respondents prioritizing in-store atmosphere.
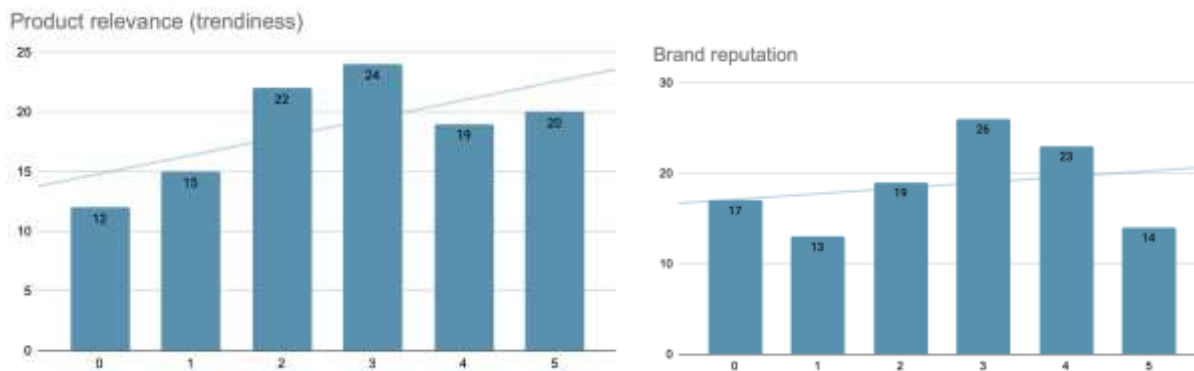

The importance of atmosphere
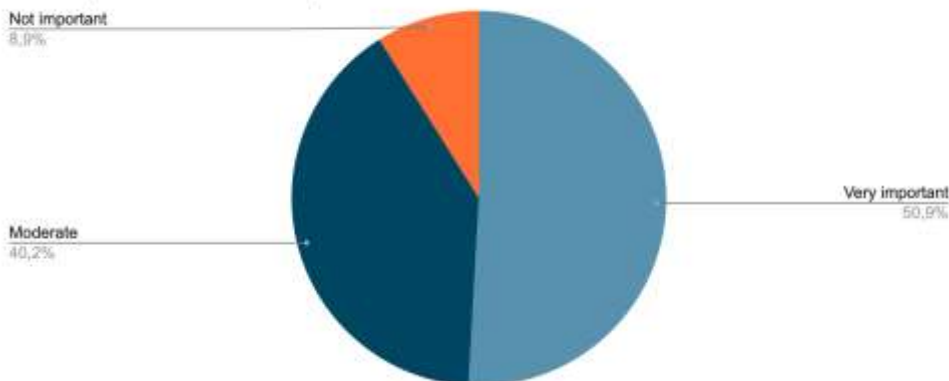
The provided grouped bar chart 1 evaluates the impact of various factors on consumer purchasing

decisions for luxury fashion items, using a rating scale from 0 (not important) to 5 (extremely important).

The evolution of neuromarketing techniques and their impact on consumer behavior in high-end segment brands of the fashion industry

The analysis reveals that the most crucial factors are the quality of materials and craftsmanship, with a notable emphasis on price, both receiving the highest importance ratings. This underscores the pivotal role these elements play in the value assessment of luxury goods. Additionally, the overall shopping experience, including comfort and convenience, also significantly influences consumer decisions, highlighting the importance of a positive purchasing environment. Brand reputation and previous positive experiences with the brand are also significant, indicating that past satisfaction and established trust can drive repeat purchases. Conversely, the influence of current fashion trends appears to be less critical, with many consumers rating it lower on the scale of importance. This suggests that while trends may be relevant, they are overshadowed by more substantial factors like product quality, cost, and brand loyalty. This data can be instrumental for luxury fashion brands, emphasizing that enhancing product quality, pricing strategies, and customer service are key to maintaining consumer satisfaction and loyalty.

Grouped Bar Chart 1.

Quality of materials and craftsmanship

Price

Level of comfort and convenience

Previous experience with this brand
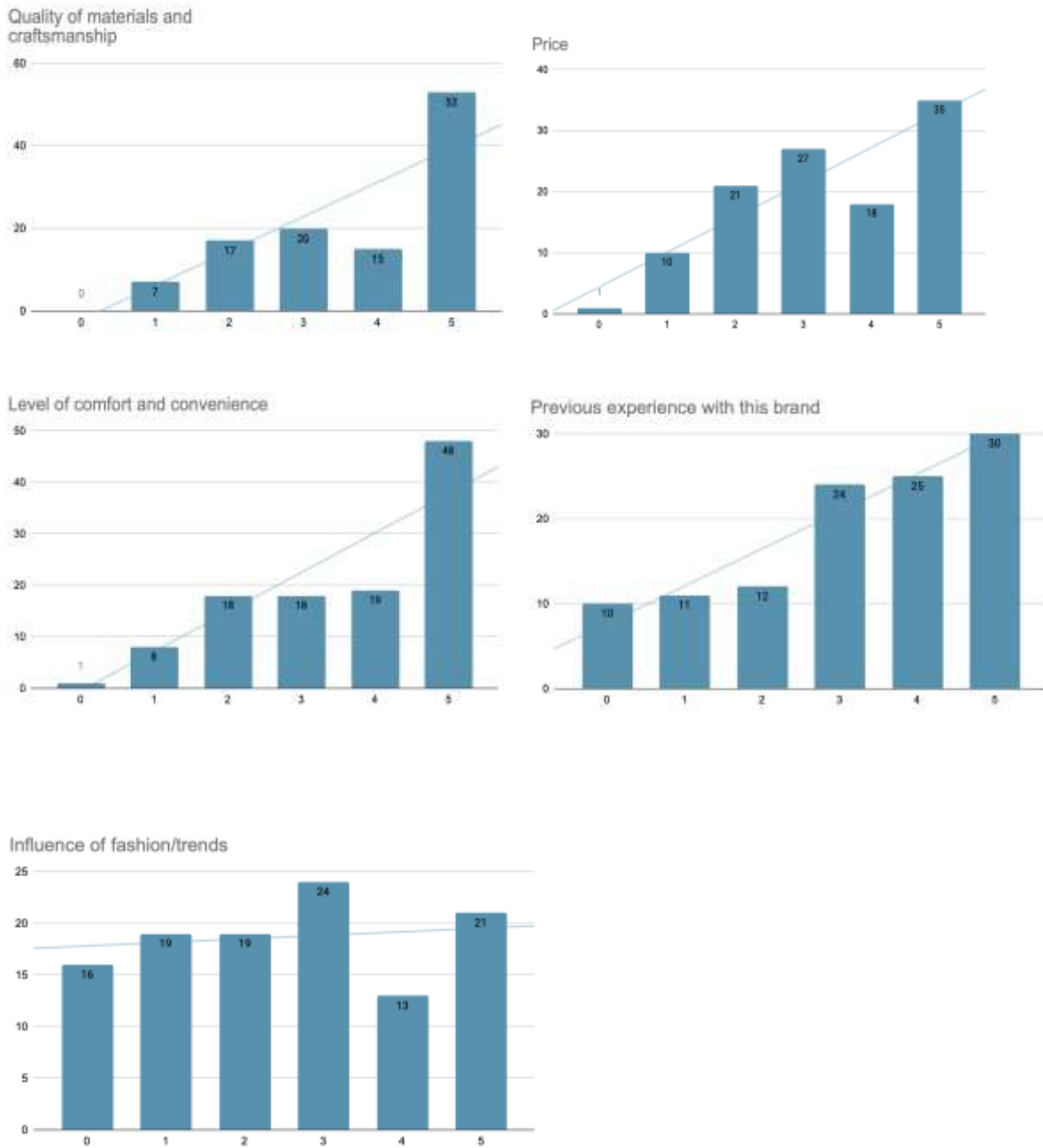

Influence of fashion/trends

Diagram 10 explores consumer responses to the smell of stores and associated memories. A significant

31.3% always links store scents with specific purchases, highlighting the effectiveness of scent

marketing. Another 26.8% occasionally make such associations, while 25.9% rarely do, and 16.1% do

not notice store smells at all. This data illustrates olfactory cues' varying degrees of influence on

consumer behavior and underscores the value of integrating strategic scent marketing in retail

environments.

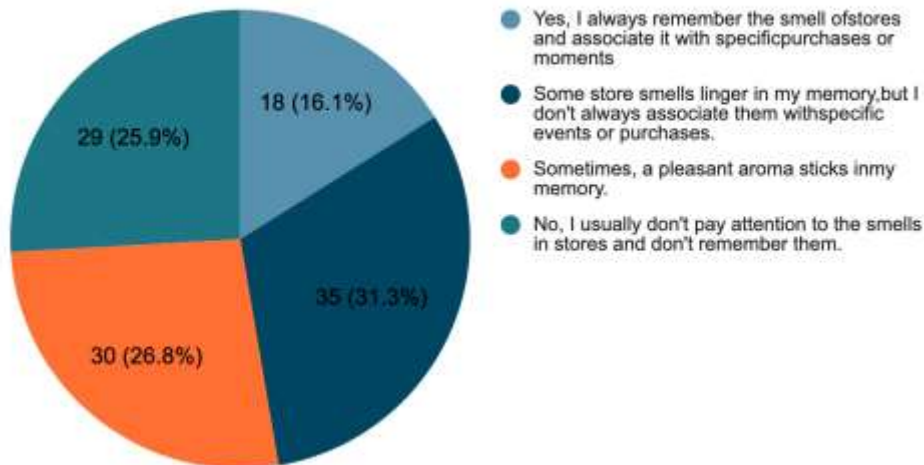*Diagram 10. Distribution of respondents based on recall of store smells.*

Diagram 11 shows consumer sensitivity to scents in clothing stores, ranging from 0 (not sensitive) to 5

(very sensitive). The majority of respondents expressed moderate to high sensitivity, with the highest

number (25) rating their sensitivity at a moderate level 3. High sensitivity levels (4 and 5) also have

significant responses, indicating that scents likely influence the shopping experience for many

consumers. Lower sensitivity levels (0, 1, and 2) are less common, suggesting that few consumers are

unaffected by store scents.

Diagram 11. Distribution of respondents based on scents of sensitiveness.

On a scale from 0 to 5, how sensitive are you to scents in clothing stores?
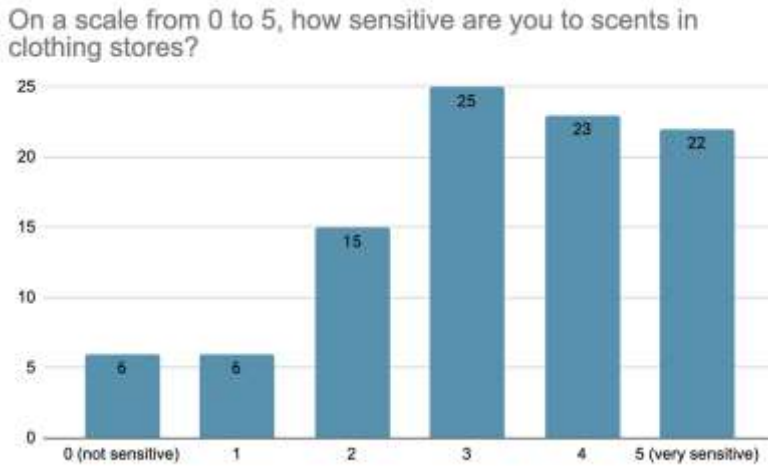
Survey participants find "fresh" scents - 48.5% most pleasant and memorable when visiting stores.

According to Diagram 12, it is evident that the least pleasant and memorable scents are "spicy," as they

received only 7 votes, accounting for 7.2%.

Diagram 12. Distribution of respondents by pleasant scents in stores.

What scents do you find pleasant and memorable when visiting stores?
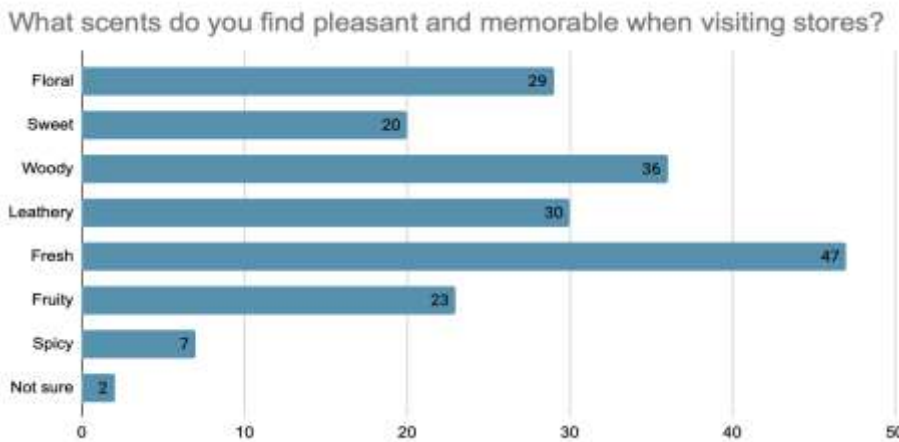

Diagram 13 shows consumer preferences for music volume in stores. Most respondents (61) prefer

moderate background music, indicating that music enhances the shopping experience if it is not too

intrusive. In contrast, fewer respondents are comfortable with medium (20) and louder than average (11)

music levels. Very few prefer music that dominates (5) or no music at all (1), emphasizing the need for

retailers to maintain moderate music levels to accommodate the majority of shoppers.

Diagram 13. Distribution of respondents by comfort level with music volume in stores.
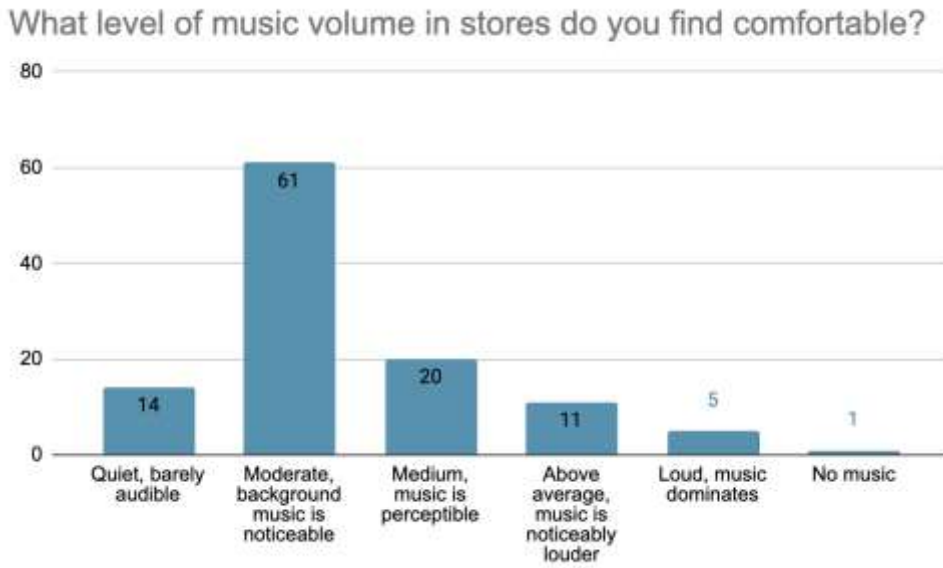

Diagram 14 illustrates that participants in our survey consider light instrumental music most suitable for use in clothing stores - 51.8%. Additionally, 33.9% of respondents deemed pop music and 33% classical music as excellent options for clothing stores. The least preference was given to the rock genre, with only 2.7% of all respondents selecting it as acceptable.

Diagram 14. Distribution of respondents by preferred genre of music in stores.
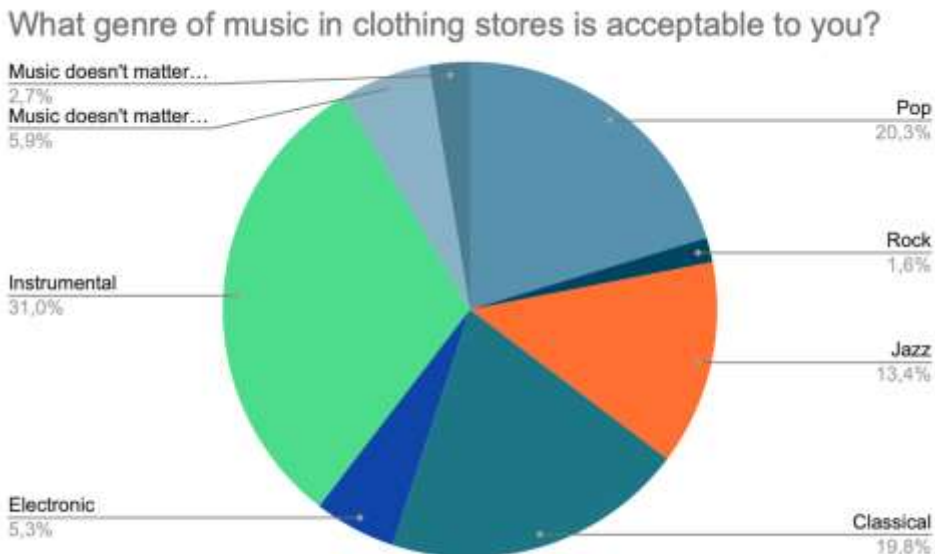
Diagram 15 illustrates consumer preferences for interior colors in clothing stores. A majority, 52.9%, favor light colors, suggesting that bright and airy interiors are preferred for creating a welcoming atmosphere. Dark colors are chosen by 15.9%, indicating a preference for more intimate settings, while 10.9% prefer contrasting colors for a dynamic environment. Notably, 13% of respondents are indifferent to color schemes, underscoring varied consumer sensitivities to store aesthetics. These findings highlight the importance of color in influencing shopping environments.

Diagram 15. Distribution of respondents based on preferred interior colors in clothing stores.

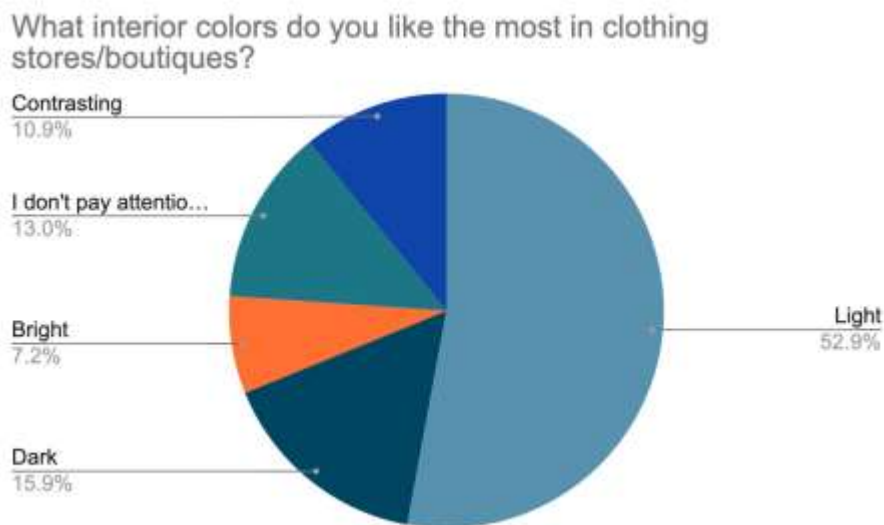Diagram 16 illustrates that the majority of respondents prefer neutral (white) lighting in clothing stores - 45.5%. A slightly smaller portion, namely 27.7%, consider warm lighting the most comfortable type of illumination in stores. The least appealing within our survey was cold lighting, which received only 5.4% of all respondents' votes.

Diagram 16. Distribution of respondents by preferred type of lighting in clothing stores.
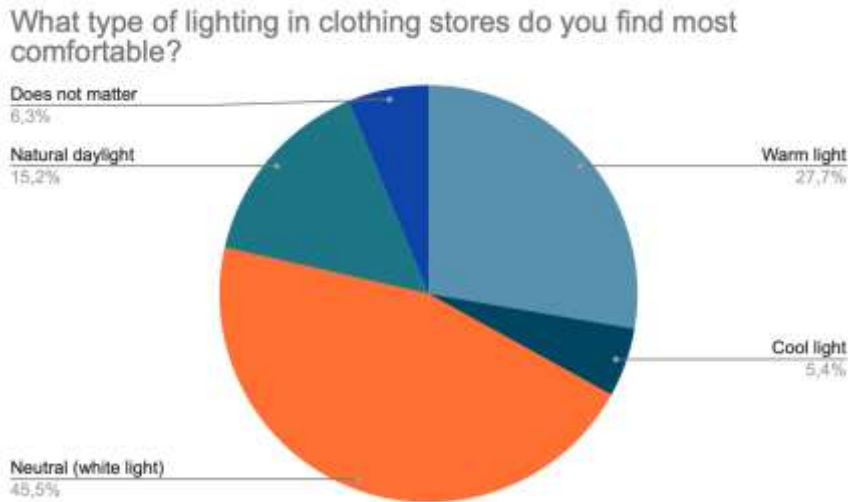
Diagram 17 shows consumer preferences for interior design styles in clothing stores. Minimalism leads

with 39.6%, indicating a strong preference for clean and uncluttered spaces. Modern design follows at

21.6%, suggesting a favor for contemporary aesthetics. Classic styles are preferred by 9.9%, with high-

tech/innovative and loft styles appealing to smaller groups at 7.2% and 8.1% respectively. Notably,

10.8% of respondents are indifferent to interior design, illustrating varied levels of consumer interest in

store aesthetics. And only a small fraction (0.9%) stated that their preference depends on the store type.

Diagram 17. Distribution of respondents based on their inclination towards interior design in clothing

stores, and their preferred style.

Do you pay attention to the interior design in clothing stores, and if so, which style do you prefer?

- It depends on the s... 0.9%
- I don't pay attention 10.8%
- High-tech/innovative 7.2%
- Provence 1.8%
- Loft 8.1%
- Minimalism 39.6%
- Classic 9.9%
- Modern 21.6%
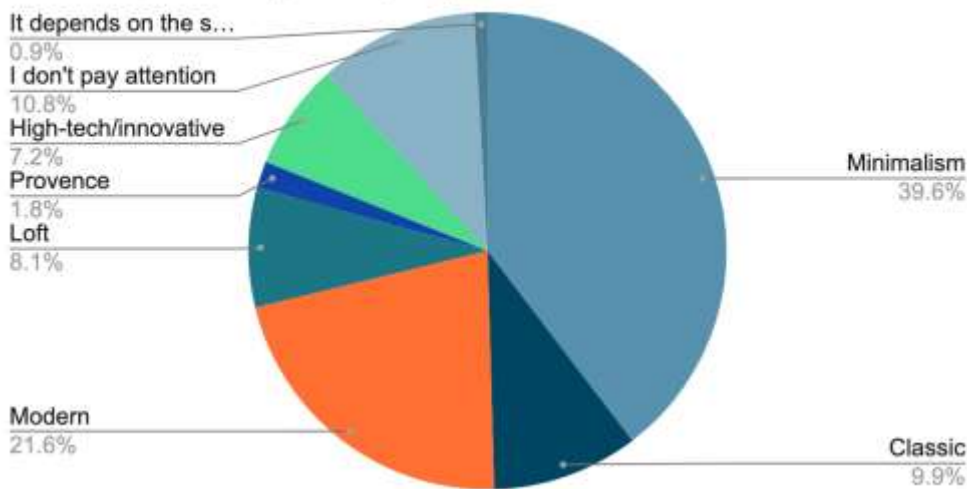
Analyzing the responses about favorite brand stores reveals several key factors that shape consumer preferences. First, the store ambiance and interior design significantly impact shopper satisfaction. Stores praised for their stylish and spacious interiors, like Lime and Massimo Dutti, create a welcoming environment that enhances the shopping experience. Moreover, the quality of products is crucial, with brands like Guess and Adidas frequently mentioned for their durable and high-quality merchandise. Customer service is another pivotal factor; attentive and friendly staff make a substantial difference, as seen in stores like Marco Polo. The variety and accessibility of products, both in physical stores and online, cater to consumer demands for convenience and variety, with brands like Zara and Mango noted for their trendy offerings. Luxury experiences also play a role for some consumers, with brands like Hermes providing exclusive products and services that underscore the luxury of the shopping experience. The general store environment, including fitting rooms, minimal queues, and pleasant lighting, also contributes to making shopping enjoyable and less stressful. Lastly, value for money is an underlying concern, influencing brand loyalty especially when consumers perceive a mismatch in price-quality ratios. Overall, while product quality and style are critical, factors such as interior design, customer

service, and a pleasant overall shopping environment are equally important in fostering customer satisfaction and loyalty.

Observation

This observation was conducted over one week, including both weekdays and weekend days, at various times including the evening, the first half of the day, and from midday to evening. The study explored consumer behavior within the luxury retail environments of Talan Gallery in Astana and Esentai Mall in Almaty, focusing on brands and brand representatives such as Viled, Dolce & Gabbana, Valentino, MaxMara, Loro Piana, Cartier, Tiffany & Co., Brunello Cucinelli, Damiani, Saks Fifth Avenue, Off-White, Celine, Bottega Veneta, Balenciaga, Prada, Gucci, Louis Vuitton, Versace, and Givenchy. By examining interactions, decision-making processes, and the influence of store environments, the observation offers insights into the neuromarketing strategies employed by these luxury brands to enhance consumer engagement and purchasing behavior.

Consumers often visit luxury malls like Talan Gallery and Esentai Mall in small groups that typically include friends or family members with the average age of the millennial generation. The group dynamic is pivotal in the decision-making process, as individuals frequently seek validation or opinions from their companions before making a purchase. In family settings, decisions can be heavily influenced by the elder members or those who control the financial resources.

Sales staff play a crucial role in consumer engagement, often initiating contact with a friendly greeting and personalized recommendations based on observed consumer preferences and behaviors. Observations show that effective communication by sales staff significantly enhances consumer confidence in their purchases, particularly when staff demonstrate empathy and understanding of the consumer's needs.

Consumers show varying degrees of receptiveness to staff interactions; some actively seek advice, while others prefer browsing independently.

Both malls utilize an open layout with high ceilings and spacious walkways that encourage leisurely shopping. Stores use minimalist yet elegant furniture that complements the luxury products displayed. Strategic placement of mirrors and seating areas can make the environment more inviting and comfortable, encouraging consumers to spend more time in the store. Upon entering the stores, consumers typically scan the environment, drawn to eye-catching displays or items placed at strategic locations. The initial few minutes are crucial as they set the tone of the visit and can strongly influence the consumer's emotional state and readiness to stay. Stores use focused lighting to highlight premium products, creating visual hotspots that draw consumer attention.

The choice of furniture and its arrangement can significantly affect the psychological comfort of shoppers. Luxurious, well-cushioned chairs and sofas, usually in neutral or brand-specific colors, reflect the store's identity and luxury status while ensuring that the consumer's physical experience in the store is relaxing and positive. Comfortable seating areas are often positioned near fitting rooms or in secluded sections of the store, providing privacy and comfort for group discussions or while making decision-making processes.

The scent is a significant component of the environment in these malls. Custom scents are diffused in many stores, designed to align with brand identity, enhance consumer mood, and create memorable sensory experiences.

Background music is tailored to the brand identity, often subtle and in alignment with the overall aesthetic of the store. This auditory layer supports the brand's image and complements the visual and olfactory elements.

Interaction with products often involves handling the items, examining craftsmanship, and discussing the product's features with companions or store staff. Consumers who touch and feel the products are more likely to form a personal connection, increasing the likelihood of a purchase.

The luxury retail environments of Talan Gallery and Esentai Mall are carefully designed to influence consumer behavior through sensory marketing and social interactions. The observed consumer behaviors—such as group decision-making and the significant role of sales interactions - highlight the importance of a personalized and engaging shopping experience. By integrating neuromarketing strategies, such as the use of specific scents and controlled lighting, luxury retailers enhance the consumer's emotional and sensory engagement, leading to more effective marketing outcomes.

Correlation

The survey data shows clear patterns in how age, gender, and income influence shopping habits. First, there exists a positive correlation between female gender and higher shopping frequency, with women shopping more often than men. According to Artur Elsheidt, "Women are the primary consumer segment in the fashion industry". This trend may reflect broader social and cultural norms where shopping is more strongly associated with female consumer habits. Women show a slight preference for a mixed approach to shopping (both online and offline), whereas men are more inclined toward exclusively online shopping, indicating divergent preferences for shopping preferences between genders. The survey results revealed a positive correlation between the age and income level of respondents. This correlation means that as the age category of respondents increases, their income level increases. Additionally, we examined

the correlation between income levels and the respondents' locations, specifically comparing those residing in regional areas versus urban cities. The analysis indicated a marked disparity in income levels between these two groups. Respondents living in urban cities reported significantly higher income levels compared to their counterparts in regional areas. This disparity can be attributed to various economic factors, including the concentration of high-paying jobs, better access to education and professional opportunities, and higher costs of living in urban settings.

The survey data reveals a negative correlation between age and the preference for online shopping. Younger individuals of Generation Z, especially those in the 18-24 age bracket, predominantly prefer online shopping or a combination of online and in-store shopping. This preference suggests that younger consumers value the convenience and variety available through digital platforms. As age increases, there is a noticeable shift towards a preference for in-store shopping. Older consumers tend to value the tactile and personal aspects of shopping in physical stores, such as trying on clothes or receiving personalized service. This trend highlights how shopping preferences evolve with age, showing a move away from online shopping and towards more traditional shopping methods as consumers age.

The analysis extends to preferences related to the shopping environment, where gender again plays a critical role. Women prefer softer, warmer lighting and are more likely to favor classical music and vibrant interior colors, enhancing their sensory experience in shopping environments. Expert Natalya Tregubova believes that "A store should literally "shine" from the inside. The difference is noticeably felt when you walk past storefronts: one store is welcoming and almost blinds you with its brightness, while another, due to insufficient or outdated lighting, creates a gloomy atmosphere. Obviously, for the second type of store, this is a losing situation unless the store's concept specifically calls for subdued lighting". In contrast, men display less specificity in their preferences for lighting and interior colors, suggesting a more utilitarian approach to these environmental features.

Additionally, there is a clear age-related trend in environmental preferences. Older shoppers prefer traditional settings characterized by softer music and more neutral color palettes, aligning with a desire for a relaxed shopping experience. Conversely, younger consumers are drawn to modern, vibrant, and dynamic shopping environments, reflecting their openness to novel and stimulating retail experiences. Expert Artur Elsheidt contends that "In youth brands targeted at people under 25, a specific type of music is played. Firstly, it should be modern and appropriate for the age group. Secondly, the music should have a dynamic tempo that makes shopping enjoyable."

Income levels further influence preferences for shopping environment aesthetics. Higher-income individuals demonstrate a pronounced appreciation for the nuanced elements of shopping environments such as specialized lighting, tailored music choices, and sophisticated interior designs. This indicates that higher economic status not only enables greater spending but also influences the demand for a more refined shopping experience.

Portrait of the average survey respondent

The typical respondent of this survey is a young female, predominantly from Generation Y (millennials), residing in urban centers such as Astana and Almaty, Kazakhstan. She falls within the income bracket of 150,000 to 350,000 KZT. A significant preference for online shopping underscores values such as convenience and accessibility, though many respondents also enjoy the hybrid experience of both online and in-store shopping, which indicates a value on flexibility and the tactile experience of physical stores. The willingness to spend substantial amounts quarterly on shopping suggests a prioritization of fashion or personal goods within their budget. In terms of personality, the respondent is adaptive, showing adaptability by embracing both online and traditional shopping methods. She is trend-conscious and likely to be aware of, and influenced by, current trends, as indicated by her open attitude toward various shopping environments and brand preferences. Additionally, she prefers engaging shopping experiences

that may include interactions in physical stores or the ease of online transactions. Occupationally, the majority are students or corporate employees, suggesting busy schedules that necessitate efficient shopping options. Shopping is considered a significant activity, possibly as a form of leisure or necessary engagement, aligning with their social and personal interests. In essence, the common portrait is that of a young woman in her early thirties, studying or just beginning her career in an urban center of Kazakhstan. She is tech-savvy and appreciates the convenience of online shopping but also enjoys the experience of visiting stores occasionally. She values flexibility in shopping options and is willing to allocate a reasonable part of her budget to maintain her lifestyle and appearance. Socially engaged, she follows trends and likes to stay updated with fashion and consumer goods. Her lifestyle requires balancing time between studies or work and personal life, making online shopping a preferred choice due to its time efficiency.

Artur Elsheidt – Marketing Director of Dostyk Plaza, Head of Marketing Shoqan Suites.

Expert insights:

The integration of Artificial Intelligence (AI) has revolutionized neuromarketing applications in luxury fashion brands. AI allows for real-time analysis of customer behavior in stores. Changes to advertising messages based on emotional background or gender presence are now possible, adapting promotions dynamically based on the predominant gender in the store or the emotional mood of customers. AI is also used to strategically place products in stores to maximize engagement and retention, starting with attention-grabbing displays followed by products aimed at sustaining interest.

Visual neuromarketing methods are considered the most effective due to the human tendency to receive 90% of information through sight. Design elements like store layouts, advertisement visuals, and clothing

designs are crucial. Women, as a primary consumer segment in the fashion industry, place significant emphasis on design aspects, including store interiors and advertisement designs. The design is often influenced by influencers, bloggers, and celebrities, making trends and communication strategies vital for effectiveness.

Prada has optimized its store layouts using AI to align with natural customer behaviors, such as the tendency to look from left to right and top to bottom, tailoring merchandise placement to these patterns. New technologies like AI for gender recognition, emotion detection, and advanced fitting rooms signify critical innovations. Interactive mirrors that allow customers to see how clothes fit without physically trying them on, and virtual reality (VR) capabilities to try on clothes virtually, are becoming more prevalent. For instance, Lamoda has introduced a feature allowing customers to virtually try on shoes using a VR camera.

Neuromarketing offers the advantage of influencing consumer perceptions and decisions on a subconscious level, leveraging emotions to foster a deep-seated love for a brand. Real-time adjustments in marketing strategies can significantly alter consumer perceptions and encourage spontaneous purchases. Neuromarketing also aids in creating lasting brand memories and associations, enhancing brand loyalty.

Ainur Junusova – CCO at G&G Astana

Expert insights:

The application of Artificial Intelligence (AI) has revolutionized neuromarketing strategies in the fashion industry. AI aids in real-time consumer pattern analysis and optimizes visual merchandising to enhance emotional engagement through colors and layout. These advancements have solidified brand loyalty

among existing customers while increasing the perceived value of offline experiences.

Visual merchandising is highlighted as the most impactful neuromarketing technique, with first impressions such as store displays playing a critical role in attracting consumers. Additionally, aroma marketing is recognized for its ability to create a welcoming atmosphere through familiar scents, which are effective yet underutilized.

Nike has taken significant steps in using neuromarketing by establishing a lab that employs FMRI to analyze brain activity and develop marketing strategies based on this data. They have also incorporated VR mirrors in stores that not only display how clothes look on consumers but also provide material composition details, transforming their stores into immersive concept spaces.

Companies like LVMH use AI to conduct biometric analyses through camera systems, tracking customer reactions to refine marketing approaches. This technology allows brands to gather precise data on consumer preferences and emotional responses, facilitating targeted marketing initiatives.

Neuromarketing offers greater precision and time efficiency compared to traditional methods. It reduces the subjectivity associated with focus groups and simplifies research processes, allowing for faster and more innovative strategy development. This approach enhances research speed, effectiveness, and accuracy.

Natalya Tregubova – Marketing Head at MEGA Alma-Ata

Expert insights:

In high-end retail, storefront design has evolved from mere aesthetics to a strategic tool that engages consumers emotionally. Storefronts that tell a story or represent a lifestyle enhance the shopping experience, starting even before a customer enters the store. Notably, increasing ceiling heights to four

meters in spaces like Mega malls amplifies the luxuriousness and inviting atmosphere of the store, enhancing consumer perceptions of brand value.

Aroma marketing is another key strategy, where mastering scent distribution complements the thematic experience without overwhelming shoppers. Proper lighting is crucial as it not only attracts attention but also creates an inviting ambiance that draws consumers inside. Reducing the number of displayed items can paradoxically increase sales by making each item stand out more, simplifying consumer choices.

These strategies highlight a shift towards experience-oriented retailing, where design, scent, and lighting synergistically create a memorable and engaging shopping environment, ultimately increasing customer loyalty and sales.

Conclusion

H1: The interior colors and spacious layout in brand stores provide customers with greater comfort.

After conducting a survey, it was revealed that for the majority of respondents, the atmosphere, including the color scheme, plays an important and moderately significant role in the store when making purchases. Additionally, according to the survey results, a large portion of respondents pay attention to interior design when visiting stores. Moreover, the preferred design, according to the majority of respondents, is minimalism, implying spaciousness and simplicity. According to Natalya Tregubova, space plays an important role in the purchase decision-making process, including the number of items presented in the store. In this case, the principle of "more equals better" does not work; rather, reducing the number of products by 20-30%, while expanding the free space of the store, can increase sales by the same percentages. Accordingly, the hypothesis is confirmed.

The evolution of neuromarketing techniques and their impact on consumer behavior in high-end segment brands of the fashion industry

H2: Scents attract more customers to the brand store, creating a welcoming and memorable shopping experience.

After conducting a survey, it was found that the majority of respondents remember the smell of stores and associate it with certain purchases and memories. Furthermore, on a five-point scale, a decisive portion of respondents rated their sensitivity to smells inside clothing stores from 3 to 5 (where 0 means not sensitive and 5 means extremely sensitive), which is a significant indicator. According to Natalya Tregubova, aroma marketing plays an important role in creating a favorable atmosphere for customers during shopping. Additionally, it is necessary to understand how the scent dispenser system works, where and how much to direct it, to make the scent recognizable, understandable, and at the same time create a comfortable atmosphere. Expert Ainur Junusova also believes that aroma marketing is highly underestimated, as smell is part of the associative range for customers. Smell helps create a comfortable atmosphere and memories that later become something familiar, comfortable, and understandable for the customer. Consequently, the hypothesis is confirmed.

H3: The specific layout, interior design elements, and choice of furniture attract more customers.

Based on the provided data and expert opinions, it can be concluded that Hypothesis H3 is partially confirmed. The survey demonstrated that the atmosphere in the store, including design, layout, color scheme, and soft furnishings, plays a significant role for most consumers: 50.9% consider it important, and 40.2% find it moderately important. Thus, specific interior and design elements significantly influence customer attraction. On the other hand, there is diversity in preferences for interior styles. For example, 39.6% of respondents prefer minimalism, indicating a preference for clean and uncluttered

spaces, while contemporary design is favored by 21.6% of those surveyed. This confirms that tastes in design can vary significantly, and not all design elements equally attract different consumers. Expert Ainura Junusova emphasizes the importance of visual perception and merchandising in creating the first impression and emotional connection with the brand, which also supports the hypothesis about the importance of the interior. However, the presence of 10.8% of respondents for whom the interior does not matter, and 0.9% whose preferences depend on the type of store, indicates that for some consumers, specific interior elements may not be as significant. Arthur Elsheidt highlights that design is part of communication, and it is crucial to meticulously work on it, especially in the fashion industry, where women are the primary consumer segment. Women attach great importance to design (interior design, advertising message design, clothing design), and design is created and promoted by various opinion leaders, bloggers, and celebrities. His view supports the hypothesis about the importance of design and interior design in attracting and retaining customers but also underscores that its impact can vary depending on the specific preferences and needs of consumers. Overall, the data show that while the interior has substantial significance for most consumers, there is a variety of preferences and perceptions, making the confirmation of Hypothesis H3 only partial.

H4: The level of music volume and music style effectively impact the duration of in-store visits and purchasing behavior.

Based on the provided data and expert opinions, it can be asserted that Hypothesis H4 is partially confirmed. On one hand, the preferences of participants in our survey indicate the significance of music style and volume in clothing stores. The majority of respondents (51.8%) believe that light instrumental music is most suitable for such venues. This supports the idea that musical accompaniment can influence

the length of store visits and purchasing behavior by creating a pleasant and relaxing atmosphere. On the other hand, Artur Elsheidt emphasizes that the music should match the mood and target audience of the store, which also affects consumer behavior. For example, in a youth-oriented store, more energetic and fast-paced music may encourage more active purchasing, corroborating the need for music to be adapted to specific audiences and atmospheres. Thus, the research findings demonstrate that music indeed impacts consumer behavior; however, the effectiveness of specific music styles and volume levels may vary significantly depending on the type of store and the preferences of its visitors.

H5: A pleasant and welcoming atmosphere, along with friendly staff in brand stores, fosters brand loyalty and encourages customers to make purchases.

Hypothesis H5 suggests that a pleasant and welcoming atmosphere in a brand store, along with friendly staff, fosters brand loyalty and encourages customers to make purchases. Survey results indicate that the in-store atmosphere, including service aspects such as greetings, smiles, and loyalty programs, significantly influences purchase decisions: 50.9% of respondents consider it important, and 40.2% say it has a moderate influence. Only 8.9% of respondents deem it not particularly important. Additionally, Ainur Junusova's comment underscores the importance of the emotional aspect of customer interaction in the store. According to the expert, customers come not so much for the product itself as for the experience and sensations provided by the store: caring service, offering drinks, services of an in-house stylist, and a non-aggressive sales approach. This creates a unique experience that customers value and cannot find in other stores. According to Natalya Tregubova, retailers are adopting a more subtle and service-oriented approach. By focusing on helping customers meet their needs and achieve their goals, stores build a foundation of trust and loyalty. This method not only improves customer satisfaction but also aligns with the store's business objectives, creating a win-win scenario for both the brand and its

patrons. Such strategies reflect a deeper understanding of consumer behavior, where the quality of the shopping experience is as important as the products offered.

Thus, Hypothesis H5 is partially confirmed. The importance of atmosphere and service quality is validated, yet the role of these factors can vary depending on individual preferences and expectations. The expert's emphasis on the need to create a deep emotional experience also indicates that standard efforts to improve the atmosphere alone may not suffice to ensure high brand loyalty and stimulate purchases.

Recommendations

Areas for Future Researchers

Investigating the differential effectiveness of neuromarketing techniques between online and offline retail settings is essential, especially as the retail landscape undergoes rapid transformation. This research could identify key elements that contribute to successful marketing in each environment, providing actionable insights to optimize strategies uniquely suited to online platforms or physical stores. Such studies would be invaluable in discerning the distinct consumer behaviors and psychological triggers active in digital versus traditional retail spaces, thereby enabling marketers to tailor their approaches to enhance consumer engagement and conversion rates in each setting. Further research could also explore the integration of neuromarketing with traditional marketing models to create hybrid approaches. By combining the data-driven and scientifically informed techniques of neuromarketing with the broad reach and established methods of traditional marketing, marketers could potentially amplify the overall effectiveness of their campaigns. This fusion could exploit the strengths of both domains, such as the emotional resonance achieved through neuromarketing and the brand loyalty fostered by traditional strategies, leading to more comprehensive and effective marketing solutions. A deeper investigation into the psychological and

neurological mechanisms underlying neuromarketing's influence on consumer decisions could

significantly refine marketing techniques and strategies. Understanding how specific neuromarketing

stimuli affect the brain's decision-making processes, emotional responses, and memory can provide a more

scientific basis for designing marketing campaigns. This knowledge could lead to the development of

more sophisticated and ethically informed strategies that effectively engage consumers while respecting

their cognitive autonomy. Such studies would not only enhance the scientific rigor of marketing practices

but also contribute to more personalized and consumer-friendly marketing landscapes.

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APPENDIXES

Appendix A

Survey on customer purchase behavior in Kazakhstan

1. Your age?

   A. 18-24

   B. 25-34

   C. 35-44

   D. 45-54

E. 55-64

F. 65 or older

2. Your gender?

A. Male

B. Female

3. What city in Kazakhstan do you live in?

A. Astana

B. Almaty

C. Shymkent

D. Aktobe

E. Karaganda

F. Другое

4. What is your monthly income level?

A. I don't earn yet

B. Less than 150,000 tenge

C. 150,000 - 250,000 tenge

D. 251,000 - 350,000 tenge

E. 351,000 - 450,000 tenge

F. 451,000 - 550,000 tenge

G. 551,000 - 650,000 tenge

H. 651,000 - 750,000 tenge

I. 751,000 - 850,000 tenge

J. 851,000 - 950,000 tenge

K. More than 951,000 tenge

5. What is your occupation?

A. Student

B. Business owner

C. Corporate employee

D. Unemployed

E. Freelancer

F. Retiree

G. Full-time

H. Prefer not to answer

6. What type of shopping do you prefer?

A. Online shopping

B. Visiting stores and boutiques

C. Combination of online shopping and visiting stores

D. Shopping malls

E. Branded stores

F. Outlet centers

7. Why do you prefer offline shopping?

A. Prefer online

B. Ability to try on

C. No need to wait for delivery

D. Ability to see and touch the product in person

E. Easier to exchange or return items

F. Enjoy the atmosphere

G. Ability to get assistance from a consultant

H. Beautiful interior and amenities

8. Which shopping malls do you prefer?

A. Tallan Gallery

B. Esentai Mall

C. Keruen

D. Mega Silk Way

E. Mega Alma-Ata

F. Dostyk Plaza

G. Shymkent Plaza

H. Другое

9. How frequently do you buy clothes?

A. Once a month

B. Several times a month

C. Once every few months

D. Once every six months

E. Once a year

F. Once every three years

G. Once every five years

H. Once every 5+ years

10. How much do you spend on clothing purchases?

A.   Less than 50,000 tenge

B. From 50,000 to 150,000 tenge

C. From 151,000 to 250,000 tenge

D. From 251,000 to 350,000 tenge

E. From 351,000 to 450,000 tenge

F. From 451,000 to 550,000 tenge

G. From 551,000 to 650,000 tenge

H. From 651,000 to 750,000 tenge

I.   From 751,000 to 850,000 tenge

J.   From 851,000 to 950,000 tenge

K. More than 951,000 tenge

11. How important is the atmosphere (design, layout, color scheme, furniture, music) and service (greeting, smiles, loyalty program) in the store when making purchases?

A. Very important

B. Moderate

C. Not important

12. On a scale from 0 to 5, how much do each of the following factors influence your decision to purchase luxury fashion items?

(0 - not important at all, and 5 - extremely important)

Product relevance (trendiness)

Brand reputation

Quality of materials and craftsmanship

Price

Level of comfort and convenience

Previous experience with this brand

Influence of fashion/trends

13. Do you remember the smell of stores and associate it with any purchases or memories?

If you selected 'no', you can skip questions 14 and 15

    A. Yes, I always remember the smell of stores and associate it with specific purchases or moments.

    B. Some store smells linger in my memory, but I don't always associate them with specific events or purchases.

    C. Sometimes, a pleasant aroma sticks in my memory.

    D. No, I usually don't pay attention to the smells in stores and don't remember them.

14. On a scale from 0 to 5, how sensitive are you to scents in clothing stores? (0 - not sensitive and 5 - extremely sensitive)

15. What scents do you find pleasant and memorable when visiting stores?

    A. Floral

    B. Sweet

    C. Woody

    D. Leathery

    E. Fresh

    F. Fruity

G. Spicy

H. Другое

16. What level of music volume in stores do you find comfortable?

A. Quiet, barely audible

B. Moderate, background music is noticeable

C. Medium, music is perceptible

D. Above average, music is noticeably louder

E. Loud, music dominates

F. No music

17. What genre of music in clothing stores is acceptable to you?

A. Pop

B. Rock

C. Jazz

D. Classical

E. Electronic

F. Instrumental

G. Music doesn't matter, just the volume

H. Music doesn't matter at all

18. What interior colors do you like the most in clothing stores/boutiques?

A. Light

B. Dark

C. Bright

D. I don't pay attention to interior colors

E. Contrasting

F. Другое

19. What type of lighting in clothing stores do you find most comfortable?

A. Does not matter

B. Warm light

C. Cool light

D. Neutral (white) light

E. Natural daylight

20. Do you pay attention to the interior design in clothing stores, and if so, which style do you prefer?

A. Minimalism

B. Classic

C. Modern

D. Loft

E. Provence

F. High-tech/innovative

G. I don't pay attention

H. Другое:

21. Please name your favorite brand store and justify your choice (Example: I like the quality of the products, stylish clothing, comfortable fitting rooms, nice and cozy staff, wide shopping area, high ceilings, presence of natural daylight)

Appendix B

Interview with Experts

1. What changes have you noticed in the application of neuromarketing methods in high-end fashion brands over the past few years? (how has it revolutionized)

2. Which neuromarketing methods are considered the most effective (evaluate the effectiveness of each component) in influencing consumer behavior in the high-end fashion brand segment and why?

3. Can you share some interesting examples of the use of neuromarketing techniques in the high-end fashion sector and their impact on consumers?

4. What recent innovations in neuromarketing are most significant for the fashion industry? Can you provide examples of specific technologies or approaches that have changed the ways brands interact with consumers?

5. What are the main challenges in implementing neuromarketing strategies in the fashion industry, and how can they be overcome?

6. What advantages does neuromarketing offer compared to traditional marketing research methods for analyzing consumer behavior in clothing stores?

Appendix C

Observation in Talan Gallery and Saks Fifth Avenue Almaty

The evolution of neuromarketing techniques and their impact on consumer behavior in high-end segment brands of the fashion industry