



## MULTI-SENSORY INTEGRATION IN BRAND DESIGN: A COMPREHENSIVE APPROACH TO CONSUMER EXPERIENCE

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### Abstract

This research delves into the profound impact of multi-sensory integration on consumer experience within the domain of brand design, with a particular focus on the subject of artificial intelligence (AI) in brands. The study is rooted in the recognition that perception is a complex process that amalgamates information from various sensory channels, fostering a comprehensive understanding of our environment. Central to this exploration is the concept of 'Multi-Sensory Integrated Design,' an innovative approach that actively engages all human senses - sight, hearing, taste, smell, and touch - to craft a holistic sensory experience for consumers. The research investigates how the integration of multiple senses can effectively stimulate and guide consumer behavior, thereby elevating the overall brand experience. It emphasizes the evolving landscape of brand design in an era marked by rapid technological advancements and the omnipresence of the Internet. In this context, brands are transitioning from a product-service orientation to an emphasis on product-experience. The study employs a qualitative approach, gathering data from diverse sources, including academic articles, industry reports, and case studies of brands that have successfully implemented multi-sensory integration in their design. The findings underscore the paramount importance of multi-sensory integration in brand design, showcasing how the seamless blending of various senses not only enriches the consumer's experience but also fosters a deeper emotional connection between the consumer and the brand. The research also delves into the potential of emerging technologies such as augmented reality (AR) and virtual reality (VR) in enhancing multi-sensory brand experiences, particularly in the context of AI-powered applications. The research concludes with forward-looking suggestions for future studies and the application of the multi-sensory integration design concept to brand design, aligning with the ongoing trends in technological advancements. This research provides valuable insights for both practitioners and scholars, offering a roadmap for more effective and impactful brand design strategies in the future, with a special emphasis on the transformative role of AI in brands.

**Keywords:** Multi-Sensory, Brand Design, Consumer Experience

### Introduction

Perception is a complex, multifaceted process that synthesizes information from various sensory channels, creating a holistic understanding of our environment. This principle underpins 'Multi-Sensory Integrated Design,' an innovative approach that engages all human senses - sight, hearing, taste, smell, and

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touch - to curate a comprehensive sensory experience for consumers. This methodology is especially relevant in the context of the contemporary market economy, which has transitioned from a product-service orientation to an emphasis on product-experience.

The title of this study, 'Multi-Sensory Integration in Brand Design: A Comprehensive Approach to Consumer Experience,' encapsulates our exploration of the profound impact of multi-sensory integration on consumer experience within the realm of brand design. The objective of this research is to delve into the ways in which the engagement of multiple senses can stimulate and guide consumption more effectively, thereby enhancing the overall brand experience.

In this era of rapid technological advancements and the ubiquity of the Internet, brand design has evolved beyond the confines of visual information. It now incorporates a richer, more complete transmission of information across all sensory modalities. Brands that successfully apply the concept of multi-sensory design are pioneering this paradigm shift, offering consumers an experience that transcends traditional boundaries and expectations.

This study aims to delve deeper into this innovative approach to brand design, exploring its implications for consumer experience. It seeks to illuminate how multi-sensory integration can be harnessed to create more engaging and memorable brand experiences, thereby contributing to the burgeoning body of knowledge in this field. By doing so, it hopes to provide valuable insights for practitioners and scholars alike, paving the way for more effective and impactful brand design strategies in the future.

The increasing popularity of AI in the hotel industry AI technology is an important boost to the hotel industry. Its application background is supported by market data and academic research, and it is also consistent with relevant theories. Research data further demonstrates the success stories of AI in improving customer satisfaction and enhancing brand loyalty. Hotel brands should actively apply AI technology to provide customers with more intelligent and personalized services, further consolidate their brand image, and achieve more sustainable and stable development.

**1. Market data support:** According to Statista, global travel business spending has grown steadily from US\$836.1 billion in 2016 to US\$867.9 billion in 2020. The application of AI technology in the tourism and hotel industry has also grown in tandem with it, becoming a sharp tool for improving service efficiency and increasing customer satisfaction.

**2. Academic Research Background:** In recent years, more and more academic research has focused on the application of AI in the hospitality industry. For example, the study by Liu et al. (2021) found that the intelligent recommendation system with AI technology has a significant impact on improving hotel customer experience and increasing loyalty.

**3. Improve customer satisfaction:** According to Accenture's research, more than 80% of travelers said they prefer to communicate with AI assistants. Intelligent customer interaction with AI technology provides customers with a more convenient and personalized service experience, increasing customer satisfaction.

**4. Enhance brand loyalty:** InterContinental Hotels Group (InterContinental Hotels Group) uses AI technology to provide personalized recommendations and customized services, resulting in a 15% increase in the occupancy rate of loyal members compared to non-members, demonstrating the effectiveness of AI in improving brand loyalty.



### Research objectives

Study is to explore the impact of multi-sensory integration on consumer experience in brand design.

### Literature Review

#### 1. Multi-Sensory Integration and Brand Experience

Brand experience marketing, as elucidated by Dr. Bernd H. Schmitt in his seminal work 'Experiential Marketing,' redefines marketing by focusing on the consumer's senses, feelings, thoughts, actions, and relationships (Byrd, 2001). This approach targets the consumer's experience with brand products, where experience resonates with stimulation. As consumers interact with a product - from selection and usage to repurchase - they generate sensory, emotional, and cognitive responses that stimulate the brand. With the continuous elevation of living standards and consumer demands, the focus has shifted towards quality of life and psychological satisfaction. In this context, experience serves as a critical medium. Amidst fierce market competition and rapid technological advancements, the unique feelings and experiences attached to a brand provide consumers with a broader choice spectrum.

A study by Singh et al. (2022)

pointed out that AI technology can help predict customer needs, allowing hotels to prepare in advance to meet guest expectations.

#### 2. Sensory Stimulation and Brand Experience

Humans interact with the world through their senses. We perceive our surroundings through sight, hearing, touch, smell, and taste, establishing an emotional and direct relationship with them. This psychological phenomenon is known as sensation. Brand experience is an interactive process between consumers and brands. From initial selection to repurchase, consumers receive sensory stimulation that generates psychological responses, thereby mobilizing their emotional feelings, prompting thought processes, and influencing actions. This interaction enables consumers to establish associations and preferences for the brand. Sensory stimulation, therefore, is a fundamental and essential dimension of brand experience (Gao, 2016).

#### 3. Multi-Sensory Brand Experience

In the brand experience, when two or more senses simultaneously receive stimulation from the same source, consumers' senses receive more information, leading to a more integrated and rich multi-sensory brand experience. In the realm of experience marketing, multi-sensory integrated design fully stimulates and mobilizes both perceptual and rational factors of consumers, thereby enhancing their purchasing power. Multi-sensory integration forms an effective emotional connection, making the brand experience multi-dimensional and fostering consumer loyalty to the brand. Consumers with positive brand experiences are more likely to exhibit high brand loyalty. Therefore, the concept of multi-sensory integrated design should be fully incorporated into brand design. The research of Balaji et al. (2021) shows that through the intelligent guest room system, guests can control the room facilities through AI voice assistant, improve the check-in experience and enhance the brand image. The research of Kim et al. (2020) shows that the introduction of AI service robots in hotels for room delivery and item delivery improves service efficiency and customer satisfaction.

#### 4. The Evolution of Multi-Sensory Brand Experience

The evolution of multi-sensory brand experience is a testament to the dynamic nature of the consumer market. As consumers become more discerning and demand more immersive and engaging experiences, brands are compelled to innovate and adapt. The integration of multi-sensory elements in

brand design is a response to this demand, offering consumers a more holistic and memorable brand experience. This evolution is not just a trend, but a paradigm shift in the way brands interact with consumers, marking a new era in brand design and marketing. The research of Almeida et al. (2021) emphasizes that AI-based personalized services can significantly improve customer satisfaction, by tailoring services to meet guest preferences, thereby enhancing guest loyalty and actively spreading word of mouth.

### 5. The Impact of Multi-Sensory Brand Experience

The impact of multi-sensory brand experience extends beyond consumer engagement. It has the potential to transform the way brands are perceived and valued, influencing consumer loyalty and brand equity. By offering a more immersive and engaging experience, brands can differentiate themselves in a competitive market, foster deeper connections with consumers, and ultimately drive growth and profitability. This literature review aims to explore these impacts in detail, shedding light on the potential of multi-sensory brand experience as a powerful tool for brand success."

#### Research methodology

This study aims to explore the profound impact of multi-sensory integration in brand design and its implications for consumer experience. To achieve a comprehensive understanding, the research methodology is structured in three main stages, incorporating both data collection and analysis processes. The conceptual framework of this research is designed to provide readers with a clear overview of the entire research process.

**1. Data Collection:** Utilize a purposive sampling approach to select relevant case studies and brands that have successfully implemented multi-sensory integration in their design. Gather qualitative data through interviews, surveys, and observational techniques to understand consumer perceptions and experiences with multi-sensory brand designs. Collect quantitative data from consumer surveys to assess the impact of multi-sensory brand experiences on consumer behavior and brand loyalty.

**2. Data Analysis:** Analyze the collected qualitative data using thematic analysis to identify recurring themes and patterns related to multi-sensory integration in brand design. Conduct content analysis of the selected case studies and brand examples to extract insights and best practices in creating multi-sensory brand experiences. Quantitatively analyze the survey data to derive meaningful statistical correlations and associations between multi-sensory brand experiences and consumer behaviors.

**3. Comprehensive Three-Dimensional Brand Image Design:** Based on the findings from the data analysis, develop a comprehensive three-dimensional brand image design guide. The guide will encompass practical recommendations and actionable strategies for brands to effectively incorporate sight, hearing, taste, smell, and touch into their design. Focus on creating emotional connections with consumers and enhancing their overall brand experiences through multi-sensory integration.

**4. Discussion and Implications:** Discuss the research findings in the context of existing literature and theoretical frameworks. Address the implications of multi-sensory integration for brand designers, marketers, and practitioners. Highlight the potential benefits and challenges of implementing multi-sensory brand experiences.

**5. Conclusion and Future Recommendations:** Summarize the key research findings and their significance for the field of brand design. Provide recommendations for future research directions and potential areas of exploration in multi-sensory integration and brand experiences.

This research methodology integrates a comprehensive conceptual framework with systematic data collection and analysis processes. By employing a qualitative approach, the study seeks to gain a deep understanding of multi-sensory integration's role in brand design and its impact on consumer experiences. Through this rigorous research process, the study aims to contribute valuable insights and practical guidance for brands in creating more engaging and memorable brand experiences that resonate with consumers on a multi-dimensional level.

### Research results

#### 1. Application Strategy of Multi-Sensory Integration Concept in Brand Design

Ken Hara's assertion that "Graphic design should not only act on people's vision but also touch all of people's senses" (Hara, 2010), underscores the importance of multi-sensory integration in brand design. Human senses actively perceive the world and are interconnected, forming an interactive relationship. This interconnectedness implies that when consumers process brand information, their reactions are not limited to visual stimuli but also encompass feelings from other sensory channels such as touch, taste, and smell. The integrated action of various senses forms a richer comprehensive feeling.

#### 2. Integration of Vision and Touch

Visual design plays a significant role in brand experience information transmission. When combined with touch, one of the five senses, the audience can experience "synesthesia," leading to a more comprehensive and vivid understanding of the product. This allows them to better experience the emotion conveyed in the design. An example of this is Kenya Hara's hospital visual indication system for Umeda Hospital. The system uses a soft, clean white cotton cloth as a signage medium for information, conveying the hospital's adherence to strict hygiene standards and providing psychological comfort.

#### 3. Integration of Vision, Touch, and Taste

In the context of food brand design, sensory experience is a crucial consideration. The packaging design of a food brand directly interacts with the consumer's senses. Naoto Fukasawa's juice box design is a prime example of this. The design awakens consumers' memories of the texture of fruit, establishing an association from vision and touch to taste in the consumer's brain.

#### 4. Integration of Vision, Touch, Smell, Taste, and Hearing

Multi-sensory integration design serves as an emotional communication medium between products and consumers. The more sensory elements injected, the richer the emotional information conveyed. IKEA, for instance, utilizes multi-sensory integration design throughout its brand. From color positioning involving the visual senses to the architectural appearance and logo design, IKEA uses a combination of blue and yellow as the main color. This color combination conveys a sense of "tranquility and warmth" comfort to the consumer. In terms of touch, IKEA encourages consumers to physically interact with their products, allowing them to experience the softness and comfort of the materials used. Taste is also a significant component of IKEA's multi-sensory integration concept design. IKEA has set up dining areas on different floors, allowing consumers to experience the brand's home products and taste Swedish food simultaneously. In the selection of background music, IKEA adopts different styles of music according to the changes of seasons and festivals. This sensory integration design is accepted and recognized by the public, maximizing the output of brand value.

The above findings highlight the importance of multi-sensory integration in brand design. The integration of various senses not only enriches the consumer's experience but also enhances the

emotional connection between the consumer and the brand. This research underscores the need for brands to consider multi-sensory integration in their design strategies to effectively engage consumers and maximize brand value.

**Table 1** Brand logo design "Platinum Boutique Hotel" with emotional experience

No.	Logo title	design	Platinum Boutique Hotel Brand Image
1.	Platinum boutique hotel brand design		<p>The brand logo of "Platinum Boutique Hotel" consists of two parts: the logo graphic and the logo font. The logo graphics are mainly designed with abstract patterns. Logo graphics named "Platinum", the overall style of The logo is the platinum "gold" color of the word "people", an abstract combination reflecting the industrial character of the brand - the hotel, the herringbone part of the Platinum Hotel guest emblem. Focus on "is the window of the people-oriented high-end luxury boutique" business philosophy, the connotation picture of the logo is in the hotel space. Not only can enjoy a high quality luxurious environment. Spiritual enjoyment is also experienced. Simple and modern logo expression technique The principle of single shape and multi-meaning is cleverly applied to the graphic design of the logo, presenting a meaningful visual style.</p>
2.	Hearing Experience design of Platinum Boutique Hotel		<p>Platinum Hearing Imaging Design This is followed by the brand's advertising music in auditory sense design. Adding music plays an important role in promoting all advertising. Giving consumers a more in-depth understanding of the brand The Platinum brand wants to convey the brand's concept of science and technology for natural health. Strengthen the emotional connection between brands and consumers. The Platinum brand's slogan should be carefully considered in terms of words. It is generally used as a supplement to describe and complement the details of an advertisement image. The timbre and sound quality of the advertising language should be unified with the advertising music. So that consumers can better understand the theme, content and spirit of advertising.</p>
3.	Platinum Boutique hotel brand image tactile		<p>Touch experience design Sensory experience is enhanced by the tactile perception of the texture and temperature of the material. Consumers have many touch points with brands in Platinum, so</p>

No.	Logo title	design	Platinum Boutique Hotel Brand Image
	experience design		<p>different printing materials can make people have different connections between purity, nature, fashion, science and technology with brands. The tactile experience of platinum substrates can be divided into pseudo-tactile experience, meaning the tactile experience caused by eye contact with the surface of a two-dimensional plane. And tactile experience refers to the experience created by surfaces. At present, image textures on special paper Most of them are obtained from the printing process. Most printed materials are business cards, invitation cards, door cards. And packaging, hotel supplies, etc. in touch design. A selection of specialty papers with natural textures combined with die-cut screen printing technology create a unique experience.</p>
4.	Boutique hotel brand image olfactory experience design		<p>Designing the olfactory experience The sense of smell in the environmental space can be reflected in the design of decorative materials and daily necessities. Because it is often associated with modern science and technology in life, because "Platinum" is a tourism business, hotels, and most of the consumer groups are new generations who love nature, simplicity, according to the Platinum brand style of simplicity. Simple, natural, pure and scientific. The scent of essential oils and other daily products. Should choose the smell of wood or the smell of the sea Wood creates olfactory visual associations, such as forests and plants, while oceanic scents create olfactory visual associations, such as ocean water and sea breeze. These two basic fragrances can reflect a sense of logic. And brand technology At the same time, it reflects the brand's natural and pure feeling.</p>
5.	Platinum boutique hotel brand image taste experience design		<p>Platinum brand image taste experience design People can have a connected taste through color and graphic suggestions. If colors can be combined with graphic shapes It will be easier to add its own characteristics and evoke the final taste experience. Platinum's brand image can also evoke the ultimate taste experience through the coordination of color, graphics and aromas of the spatial environment.</p>

Source: Author

## Conclusions

The trend of multi-sensory integrated design has significantly influenced brand experience, harmonizing design with brand values. As this research has shown, when designing a brand using multi-sensory integration, it's crucial to select sensory elements that align with the brand's core values. This approach ensures an effective interconnection of functions, leading to a unified brand experience that fosters consumer trust and brand loyalty.

The rapid development of information technology, particularly the advent of augmented reality (AR) and virtual reality (VR), has opened up new possibilities for multi-sensory integrated design. Brands like Alipay have successfully utilized AR technology to create deep interactive experiences for users, making the brand experience more engaging and interesting. Studies have shown that AR can provide sufficient information, particularly about product sizes and visual characteristics, aiding consumers in their purchase decisions.

However, while technologies like VR can extend the experiencescape, they cannot fully replace live events. This highlights the need for a balanced approach that combines the benefits of multi-sensory integration with the unique advantages of live experiences.

Looking ahead, the exploration of taste and smell in VR technology development presents exciting opportunities for creating a new field of experience that combines design, science, and embodiment. As we move forward, it will be essential to continue researching specific strategies and techniques for implementing multi-sensory integration in different industry contexts. This will help us better understand the potential impact of emerging technologies on multi-sensory brand design and pave the way for more immersive and engaging consumer experiences.

There are many advantages and disadvantages of using AR and VR technology in brand identity design. Knowing these strengths and weaknesses can help you decide when these techniques should be used, and more usefully than before.

**Advantage:** Provide immersive experience: AR and VR technologies can create a more immersive experience for consumers, allowing them to have a deeper interaction with the brand and enhance brand memory and awareness. Enhanced personalized experience: Using AR and VR technologies, brands can provide customized experiences based on consumers' interests and preferences, strengthening the emotional connection with consumers. Innovation and differentiation: Brands adopting AR and VR technologies are more likely to stand out in a highly competitive market and create a unique and eye-catching brand image. Expanding interaction channels: AR and VR technologies provide brands with a new way to interact with consumers, expanding possibilities beyond traditional interaction channels.

**Shortcoming:** High cost and technical difficulties: The application of AR and VR technology usually requires high investment and technical support, which may be a challenge especially for small brands.

**Limited user adoption:** Although AR and VR technologies are gaining popularity, there are still cases where some users are unfamiliar or unwilling to use these technologies, limiting their coverage.

**User experience may be unstable:** The user experience of AR and VR technologies may be affected by factors such as device performance, network connection, and software stability, resulting in unstable user experience.

**Brand story presentation:** When brands want to attract consumers by telling vivid stories, AR and VR technology can provide a vivid and memorable presentation platform. Product demonstration and

trial: AR and VR technologies can provide consumers with virtual product demonstration and trial experience, helping consumers better understand product features and functions. Branding campaigns and promotions: Using AR and VR technology in branding campaigns and promotions can increase engagement and interactivity, attracting the attention of more target consumers. Creative advertising marketing: For creative-oriented brand advertising marketing, AR and VR technologies can add freshness and creative elements to advertising, attracting more consumers' attention. Considering the advantages and disadvantages of AR and VR technologies and application scenarios, brands can choose whether to adopt these technologies according to their own needs and target audiences, and use them at the right time to make them more useful and effective than before.

### Suggestions

The brand experience is significantly influenced by the integration of various sensory perceptions such as vision, touch, smell, taste, and hearing. Multi-sensory integrated design, which is grounded in visual design and the application of various materials and technologies, effectively mobilizes a variety of sensory channels to work in harmony. This approach enables the core brand values to be communicated through sensory stimulation, facilitating the transmission and integration of sensory information. As a result, audiences can broaden their sensory scope and content, leading to a rich sensory experience. The application of the multi-sensory integration design concept to brand design is not only rooted in the psychological mechanisms behind the design concept but also aligns with the future development trends in technology.

Principle of immersive experience: In brand design, AR and VR technologies should be actively used to create a more immersive experience for consumers. Enhance the emotional connection and cognition between consumers and brands by adopting multi-sensory experiences, such as sight, hearing, touch, etc. This principle can be applied to brands across industries, but is especially universal when it comes to innovating and engaging with consumers.

Personalized Experience Principle: Brands should provide customized experiences based on consumers' interests and preferences. With the help of AR and VR technology, brands can create unique experiences for different groups of consumers, thereby enhancing consumers' loyalty and identification with the brand. This principle has wide applicability in personalizing market positioning and shaping brand image.

Principles of innovation and differentiation: In a highly competitive market, brands should actively adopt AR and VR technologies to create novel and eye-catching brand images. By integrating AR and VR technology with the brand story, it provides an unforgettable consumer experience, thereby differentiating itself from competitors and increasing the attractiveness and competitiveness of the brand.

Principle of comprehensive data support: When using AR and VR technology, brands should rely on sufficient research and theoretical support. By combining academic articles, industry reports and universal case studies, brands can better understand the application practices and effects of AR and VR technologies in different industries, so as to formulate more targeted and effective strategies.

The principle of continuous innovation: Brands should maintain continuous innovation when applying AR and VR technologies, and constantly expand new application areas and ideas. As technology evolves and consumer demands change, brands need to constantly adapt and update AR and VR experiences to keep their brands fresh and engaging.

The principle of combining theory and practice: Brands should organically combine theory and practice, use multi-sensory principles and brand strategies, and carefully design AR and VR experiences. At the same time, it should be continuously optimized and improved according to the actual application effect to ensure the effectiveness and success of AR and VR technology in brand image design.

The above principles can provide reference for brand designers and marketers to help them better apply the concept of multi-sensory integration when using AR and VR technology, and combine with sufficient research and theoretical support to create more attractive, meaningful and popular brands. Appropriate brand experience. Such guidelines will help brands maintain a leading position in a highly competitive market and bring consumers a more profound and memorable brand experience.

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