

SENSORY-DRIVEN CONSUMER SATISFACTION IN CHINA'S CIGARETTE MARKET: A STRUCTURAL EQUATION MODEL OF PACKAGING, TASTE, AND EXPERIENCE

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Abstract:

Background: In recent years, the Chinese cigarette market has undergone significant changes, with tobacco companies emphasizing consumer research in their product development and marketing strategies. A noticeable shift toward analyzing and optimizing the entire consumer experience makes a consumer-centric perspective the top priority in product development.

Purpose: The study aims to create a consumer-centered evaluation system focusing on sensory and emotional aspects. Exploring the connections between packaging design, the smoking experience, quality perception, internal taste, innovative design, and product naming offers insights into leveraging these elements to differentiate products and improve brand competitiveness in a declining market.

Design/methodology/approach: The study was conducted in 12 cities and involved quantitative research with a sample size of 2,521 participants. Participants were selected using stratified sampling to ensure representation from China's different geographical and economic regions. The analysis included the development of a structural equation model based on the relationships among seven latent variables and 62 observed variables.

Findings/Result: This study shows that the smoking experience is the most critical factor in determining satisfaction, with internal taste playing a key role. Another result is that the packaging's tactile and auditory features, such as the smoothness of the box and the sound of tearing, significantly enhance the consumer experience. Sensory attributes, including aroma and visual appeal, greatly influence quality perception and overall satisfaction.

Conclusion: This study provides new insights and empirical evidence for cigarette companies to better serve consumers, highlighting the role of sensory and emotional factors in product development and innovation.

Originality/value (State of the art): By improving these influential indicators, cigarette products can effectively enhance their performance in the consumer journey experience. This paper provides a new perspective and empirical reference for cigarette enterprises to serve consumers better.

Keywords: cigarette consumption experience, consumer satisfaction, sensory elements, influencing factors, structural equation model

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INTRODUCTION

This study is grounded in consumer behavior and experience economy theory, exploring the interaction between sensory experiences, emotional needs, and consumer decision-making (Solomon, 2020). Its significance lies in addressing the changing demands of modern consumers, who increasingly prioritize emotional engagement and sensory satisfaction in their purchasing decisions, particularly among Chinese millennials seeking experiential consumption over material acquisition. Experience economy theory emphasizes the need for brands to go beyond functional benefits, building loyalty and differentiation through impactful sensory and emotional experiences (Sundbo & Sørensen, 2013), such as integrating cultural symbolism (e.g., red/gold packaging for auspiciousness) to resonate with collectivist values in China. Advances in sensory marketing have underscored the influence of visual, auditory, and olfactory stimuli on consumer perceptions, judgments, and emotional connections with brands (Venugopal, 2024; Lemon & Verhoef, 2016), with tactile innovations (e.g., embossed textures) gaining traction in China. These insights are especially relevant in the digital age, where Consumer Experience 4.0 highlights the importance of managing the entire consumer journey to enhance brand competitiveness (Ryu et al. 2023).

In the context of the tobacco industry, the necessity of this research is heightened due to the homogeneity of cigarette products, making differentiation crucial. While there has been extensive research on cigarette production standards, technical specifications, and safety requirements, consumers' subjective sensory and emotional experiences—such as Chinese relationship-driven gift-giving rituals or the symbolic value of premium packaging—remain underexplored (Villanti et al. 2017). This gap is significant as consumer preferences increasingly shift toward products that offer unique and meaningful sensory experiences (Szocs et al. 2023). Other industries like food and cosmetics have successfully leveraged sensory attributes like scent, texture, and visual appeal to drive consumer engagement. However, similar efforts in the tobacco sector still need to be made available and more complete (Levy et al. 2019).

Existing frameworks in the tobacco industry primarily focus on rational production processes, often neglecting subjective consumer perceptions. However,

studies indicate that multisensory experiences—such as distinctive packaging designs (e.g., lunar festival themes) and ambient scents—can substantially enhance consumer engagement and emotional connections (Mantey et al. 2019; Ryu et al. 2023). This underscores the urgent need for innovative approaches that integrate sensory and emotional factors into product evaluation and development strategies, creating untapped potential for product differentiation and market competitiveness. To address these challenges, this study proposes a novel cigarette evaluation system incorporating sensory and emotional dimensions, bridging critical gaps in existing models. Unlike traditional production-centered approaches, this research applies insights from sensory marketing and Consumer Experience 4.0 to formulate actionable strategies for product differentiation (Hsiu-Ching et al. 2018; Nertsberg & Hansson, 2024). While previous studies have acknowledged the importance of sensory attributes, few have explored their connection to branding outcomes and emotional engagement within the tobacco industry, highlighting the necessity of this research.

The study significantly contributes by advancing consumer-centric models and demonstrating the strategic importance of sensory and emotional dimensions in enhancing consumer satisfaction and product differentiation. It builds on existing research by Szocs et al. (2023), offering an integrated framework explicitly tailored for the cigarette market. Additionally, it innovatively applies sensory and emotional factors in a new context, extending principles commonly studied in industries like food and cosmetics (Hartatin & Simanjuntak, 2016; Mantey et al. 2019) to the tobacco sector, where eco-certified packaging (e.g., biodegradable materials) aligns with China's sustainability agenda.

This study addresses the urgent demand for consumer-centered innovation in the highly competitive and homogeneous tobacco industry by developing a dual-focused evaluation framework that integrates differentiation strategies with sensory-emotional dimensions. Specifically, it demonstrates how strategic emphasis on sensory cues (e.g., scent, tactile features) and packaging design can enhance product competitiveness while fostering emotional resonance with consumers. The framework not only enriches theoretical discussions on sensory marketing in restricted markets but also provides actionable insights for balancing tradition and innovation—exemplified by

harmonizing symbolic elements like red/gold motifs with minimalist textures to address hybrid cultural identities. These findings establish a pathway for branding strategies that align with evolving consumer expectations, effectively bridging market demands with culturally responsive product development.

METHODS

The research was conducted in 12 cities in China, covering seven major geographical regions: Shanghai, Hangzhou, Haikou, and Shenzhen in South China; Zhengzhou in Central China; Beijing and Tianjin in North China; Shenyang and Dalian in Northeast China; Kunming and Chongqing in Southwest China; and Xi'an in Northwest China. The survey was executed between November and December 2022.

The study utilized electronic questionnaires as the primary data source. The questionnaire was divided into three sections: screening, the main questionnaire, and background information. The screening section gathered basic details on respondents' demographics, smoking history, and cigarette consumption habits. The main questionnaire explored cigarette consumption experiences, while the background information section collected data on gender, living status, education, occupation, and monthly personal income.

This research systematically gathered consumer input through interviews to identify and establish 62 indicators for evaluating consumer experience and satisfaction. These indicators were derived from qualitative group discussions with consumers based on the factors they mentioned and their respective mention rates. The instruments used in this study are explained below.

The variables and indicators in this study are categorized according to the five senses: the consumption process and satisfaction. Each indicator corresponds to a specific aspect of the consumer experience, such as the ease of understanding and remembering the product name (auditory), the appearance and difficulty of opening the cigarette pack (tactile), the color and shape of the cigarette box (visual), the smell when opening the cigarette box (olfactory), and various aspects of the smoking experience (taste). A detailed list of the indicators is presented as follow:

1. Auditory: Product name (The name is easy to understand, the name is easy to remember and spread, the name of good moral), Opening of the cigarette pack (The sound of the BOPP tearing and pulling).
2. Tactile: Contact with the cigarette pack (Cigarette pack appearance color, Difficulty in opening the cigarette pack, The sound of the cigarette pack opening and closing, Removing the cigarette box is simple,), Opening of the cigarette pack(The smoothness of the cigarette box cable, Conveniently open the cigarette pack, Conveniently of the Inner lining paper), Filter experience(The Hardness and softness of the filter), Smoking experience(The filter adheres to your lips, Filter and lip contact for comfort,), Storage and portability (Cigarette case is not easily damaged/flattened/deformed), Cigarette experience Satisfaction(Moisture content of cigarettes Satisfaction with "cigarette pack").
3. Visual: Contact with the cigarette box(The pattern/color of the cigarette box, The cigarette box shape/size, The material texture of the cigarette box), Opening of the cigarette pack(Unique way of opening), Opening of the cigarette box(Unique cigarette arrangement design, The appearance of the Inner lining paper, The appearance of the inner-frame paper), Filter experience(Coordinating the filter tip with the cigarette box, Special filter design), Cut Tobacco experience(The color of cut tobacco, Firmness of cut tobacco), Cigarette experience(The color of cigarette paper, Pattern/grain of cigarette paper, Perception of cigarette quality, The length and thickness of the cigarette), Burning experience(The ash wrap, Ash color, Extinguish the cigarette, Dropping cigarette ends, Burning rate, The stem affects combustion), Storage and portability(Tobacco dropped while carrying it)
4. Olfactory: Opening of the cigarette box (The smell of opening cigarette box), Smoking experience (Cigarette smell), Smoking feelings (The distinctive aroma of tobacco).
5. Taste: Smoking experience (The distinctive flavor of a filter tip, The distinctive flavor of bursting beads), Smoking feelings (The Original aroma of tobacco, Strength, Irritation, Smoke Concentration, offensive odor, Aftertaste, Draw resistance), post-smoking feelings (The dryness of the mouth after smoking, Bad breath after smoking, The odor of smoke lingers heavily on the clothing, Consistent flavor (throughout the entire cigarette), Storage and portability (The taste stays the same after opening).

The scoring system employed in this survey is a variation of the Likert-type scale, where consumers are asked to rate each indicator across experience using a 10-point scale. Within the experience rating category, a unique “Not Experienced” option is included for instances where consumers may have overlooked or failed to encounter specific indicators. The detailed scoring criteria are as follows: 0 points for “Not Experienced,” 1-2 points for “Very Poor Experience,” 3-4 points for “Poor Experience,” 5-6 points for “Average Experience,” 7-8 points for “Good Experience,” and 9-10 points for “Very Good Experience”.

A higher score indicates a better consumer experience. If consumers indicate “Not Experienced,” they should select 0 points. The Cronbach’s alpha value for the scale used in this study is 0.977, indicating high internal consistency among the indicators. This suggests that the scale is reliable and can accurately measure consumer experience and satisfaction.

Data was collected through electronic questionnaires distributed to smokers who met specific criteria, including being regular cigarette purchasers, aged 18-55, residing in the local area for over a year, smoking for more than two years with an average daily consumption of no less than five cigarettes, and having smoked the specified products regularly in the past six months. Each city received at least 200 samples, resulting in a total of 2,521 valid responses. To ensure data accuracy, submitted questionnaires were reviewed, and follow-up telephone calls were conducted for verification.

The collected data was analyzed using SPSS software. An exploratory factor analysis was conducted to examine relationships between various indicators and identify principal components influencing extraction. The KMO and Bartlett’s sphericity test validated the applicability of the data, yielding a KMO value of 0.984 and significant Bartlett’s test results (p -value = 0.000). Principal component analysis identified seven principal components with eigenvalues greater than 1, explaining 56.908% of the sample variance. These components were further rotated to determine representative indicators, such as “quality perception” and “smoking experience”.

Theoretical Foundations: Consumer Experience and Customer Satisfaction

This study primarily relies on Consumer Experience

Theory and Customer Satisfaction Theory, which emphasize the integration of consumer perceptions, emotions, and sensory experiences to enhance overall satisfaction. Consumer Experience Theory asserts that consumer satisfaction is a complex construct influenced by subjective, sensory, and emotional factors throughout the consumption journey (Lemon & Verhoef, 2016). Research has demonstrated that experiential elements, such as sensory engagement (e.g., taste, aroma, and packaging), are crucial in shaping consumer perceptions and satisfaction (Venugopal, 2024; Nertsberg & Hansson, 2024). Likewise, Customer Satisfaction Theory highlights the connection between perceived quality, consumer expectations, and the level of satisfaction with a product, indicating that both intrinsic (product quality) and extrinsic (packaging, branding) attributes contribute to satisfaction levels (Moazzam et al. 2024).

Variables Studied

The review identifies several key variables examined in research on cigarette consumption experiences, including quality control, sensory evaluation, brand perception, and consumer satisfaction. Pereira et al. (2019) explored the quality characteristics at different production stages and their impact on consumer satisfaction. Conversely, Wu et al. (2014) quantified sensory indicators, facilitating direct comparisons across cigarette products to enhance the objectivity of sensory evaluations. Liu and Wei (2018) integrated consumer perceptions of taste and packaging with brand and market performance data to assess overall product performance, underscoring the role of packaging in perceived quality.

Outer Packaging Design, Quality Perception, Smoking Experience, Product Names, and Innovative Design

Packaging design plays a critical role in shaping consumers’ perception of product quality, particularly for items like cigarettes where intrinsic quality is not immediately visible (Hammond et al. 2014; Yansen & Perez, 2023). Elements such as color, material, typography, and graphics convey a product’s identity, positioning, and brand narrative (Han & Oh, 2024; Belliza & Kusumawati, 2024). Transparent packaging may emphasize product integrity, while opaque designs leverage patterns and colors to build brand imagery (Yansen & Perez, 2023). However, standardized

packaging, which reduces unique design features, risks weakening emotional connections between consumers and products (Hammond et al. 2014).

The smoking experience is also influenced by packaging through pre-consumption expectations. Visually appealing and tactilely engaging designs heighten anticipation, enhancing sensory enjoyment during use (Pereira et al. 2019; Szocs et al. 2023). Multisensory elements—such as texture, weight, and functional mechanisms (e.g., flip-top lids)—further enrich the experience (Spence, 2019). Innovative packaging, including resealable features, interactive components, or sustainable materials, serves as a marker of brand creativity, differentiating products in competitive markets (Hagtvedt & Brasel, 2016; Thomson, 2016; Yansen & Perez, 2023).

Product naming and packaging design synergize to create a unified brand identity, improving recognition and recall (Anthony Yu Alvar, 2024; Riyanto, 2024). Consistency between design elements and product names allows consumers to associate products with specific qualities (e.g., luxury or fun), reinforcing brand loyalty (Kotler, 2016).

H1: Outer packaging design positively affects quality perception.

H2: Outer packaging design positively affects the smoking experience.

H3: There is a positive correlation between outer packaging design and innovative design.

H4: There is a positive correlation between outer packaging design and product name

Smoking Experience, Quality Perception, and Overall Satisfaction

The smoking experience significantly shapes consumers' perceptions of product quality, as sensory and emotional aspects of consumption such as taste, smoothness, and aroma directly influence evaluations of quality (Hoek & Robertson, 2015; Khafidzoh et al. 2024). Positive sensory experiences lead consumers to associate products with higher quality, particularly for cigarettes, where technical attributes are difficult to assess independently. Sensory marketing theories emphasize that emotional responses and sensory cues during consumption are critical to quality judgments, reinforcing brand associations (Khafidzoh et al. 2024).

A satisfying smoking experience also drives overall consumer satisfaction. Enjoyable sensory elements, including taste and aftertaste, enhance satisfaction levels, which are pivotal for brand loyalty and repeat purchases (Lemon & Verhoef, 2016; Moazzam et al. 2024). This aligns with research showing that satisfaction stems from integrated multisensory engagement, similar to how labeling impacts food product preferences (Lemon & Verhoef, 2016; Moazzam et al. 2024).

Quality perception further underpins satisfaction, especially for high-involvement products like cigarettes. Perceived superiority in sensory attributes (e.g., taste, aroma) boosts immediate satisfaction and fosters long-term emotional connections to brands, increasing loyalty and advocacy (Anthony Yu Alvar, 2024; Lemon & Verhoef, 2016). Consumer satisfaction theories confirm that quality perceptions are fundamental to driving both satisfaction and loyalty.

H5: Smoking experience positively affects quality perception

H6: Smoking experience positively affects overall satisfaction

H7: Quality perception positively affects overall satisfaction

Internal Taste, Smoking Experience, Innovative Design, and Product Name

The smoking experience is pivotal in shaping consumers' perceptions. Positive internal taste profiles, including flavor, smoothness, and aftertaste, enhance enjoyment and strengthen brand associations, leading to greater satisfaction and repeat purchases (Utama, 2022; Thomson, 2016). This multisensory engagement contributes to an overall enhanced experience, fostering emotional connections and brand loyalty (Thomson, 2016).

Innovative packaging design also influences taste perceptions and product quality. External design elements, such as aesthetics and interactive features, significantly affect consumer expectations and can enhance the perceived flavor of a product (Velankar, 2024; Thomson, 2016). This cross-modal perception indicates that visual elements can alter taste experiences (Thomson, 2016).

Moreover, product names significantly shape consumer expectations and taste perceptions (Harizi, 2022; Morris, 2018). Descriptive or appealing names create positive expectations, enhancing the overall taste experience, often referred to as the placebo effect (Harizi, 2022; Morris, 2018). This underscores the power of branding in influencing taste perception.

The smoking experience, bolstered by positive sensory attributes and innovative packaging, significantly impacts quality perception and overall consumer satisfaction (Anthony Yu Alvar, 2024; Lemon & Verhoef, 2016; Moazzam et al. 2024). This holistic approach fosters emotional engagement, brand loyalty, and ultimately influences purchasing decisions (Velankar, 2024; Nertsberg & Hansson, 2024).

- H8: Internal taste positively affects the smoking experience
H9: Innovative design positively affects internal taste
H10: There is a positive correlation between innovative design and product name
H11: Product name positively affects the internal taste

The aforementioned empirical studies support the hypothesis that outer packaging design positively affects both quality perception and smoking experience. There exists a positive correlation between outer packaging design and both innovative design and product name. Smoking experience also has a positive impact on quality perception and overall satisfaction. Similarly, quality perception has a positive effect on overall

satisfaction. Furthermore, internal taste positively influences the smoking experience, while innovative design positively affects internal taste. Lastly, there is a positive correlation between innovative design and product name, and the product name positively influences internal taste. The conceptual framework is illustrated in Figure 1.

RESULTS

Analysis of the Relationships Between Latent Variables in the Consumer Experience Model

The final model results indicate 11 significant path relationships among the seven latent variables (factors), as shown in the structural path diagram (Figure 1). These relationships provide insights into how different latent variables affect consumer experience and satisfaction. As presented in Table 1. all path coefficients are positive, meaning each factor positively influences its associated latent variables. Notably, the smoking experience has a highly significant path coefficient of 0.808 for overall satisfaction. This indicates that consumers' overall satisfaction is most strongly affected by their smoking experience, highlighting it as a critical area for improvement. Specifically, Internal Taste and Outer Packaging Design significantly impact the Smoking Experience, with Internal Taste having a more substantial effect (path coefficient = 0.659). This underscores the importance of enhancing the flavor profile to improve the overall smoking experience.

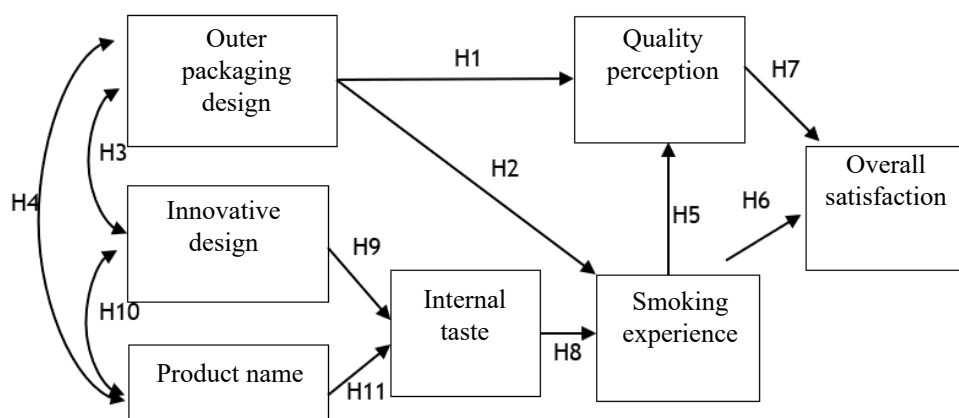


Figure 1. Conceptual framework of the cigarette consumption journey experience, consumer overall satisfaction impacted by smoking experience and quality perception

Table 3. Detailed structural path coefficients among latent variables in the consumer experience model

	Paths	Standardized coefficients	Unstandardized coefficients	P
Internal taste	← Innovative design	0.717	0.624	***
Internal taste	← Product name	0.164	0.154	***
Smoking experience	← Internal taste	0.659	0.774	***
Smoking experience	← Outer packaging design	0.311	0.347	***
Quality perception	← Outer packaging design	0.523	0.578	***
Quality perception	← Smoking experience	0.499	0.494	***
Overall satisfaction	← Quality perception	0.115	0.109	0.016
Overall satisfaction	← Smoking experience	0.808	0.756	***
Outer packaging design	↔ Innovative design	0.867	0.924	***
Innovative design	↔ Product name	0.523	0.564	***
Outer packaging design	↔ Product name	0.645	0.638	***

Note. (***) significant at $p < 0.001$

Furthermore, Innovative Design and Product Name Influence Internal Taste, but Innovative Design has a more substantial effect (path coefficient = 0.717). This suggests that successful innovations in design could greatly enhance the product's sensory experience. Although Quality Perception has a smaller impact on Overall Satisfaction, it still plays a significant role, primarily influenced by Outer Packaging Design and Smoking Experience. The mutual influence among Innovative Design, Product Name, and Outer Packaging Design emphasizes the need for a coordinated approach to product development. A comprehensive design strategy that integrates these elements is essential for improving consumer perception and satisfaction.

Analysis of Observed Variables within Latent Variables

This section analyzes the observed variables associated with each latent variable and their influence on consumer experience. Table 2 presents the detailed coefficients for these variables.

The Effect of Outer Packaging Design on Quality Perception and Smoking Experience

Packaging design is indeed a pivotal marketing tool, significantly influencing consumer perception and differentiating products in the market. As per the analysis in the uploaded results, tactile features such as the smoothness of the cigarette box cable (standardized coefficient = 0.721) and auditory cues like the sound

of the BOPP tearing (standardized coefficient = 0.720) have strong positive effects on Outer Packaging Design. These sensory elements not only enhance perceived quality but also align with consumers' expectations of a premium smoking experience. The results further underscore the importance of convenience in opening the cigarette pack (standardized coefficient = 0.709), contributing to an overall positive perception.

Consistent with studies by Biswas (2014) and Spence et al. (2014), which highlight the role of tactile and auditory stimuli in product evaluation, manufacturers should prioritize integrating refined sensory elements into packaging. This will not only boost product appeal but also foster brand loyalty by exceeding consumer expectations.

The Effect of Smoking Experience on Quality Perception and Overall Satisfaction

The smoking experience is a critical determinant of satisfaction and quality perception, as evidenced by the highly significant path coefficient of 0.808 for Overall Satisfaction stemming from Smoking Experience. Multisensory engagement, including tactile, olfactory, and airflow dynamics, plays a crucial role in enhancing consumer satisfaction. The observed variables associated with Smoking Experience, such as Draw Resistance (standardized coefficient = 0.744), Aftertaste (0.729), and Consistent Flavor (0.718), underscore the importance of optimizing these sensory elements.

Table 4. Standardized coefficient of outer packaging design, quality perception, internal taste, smoking experience, innovative design and innovative design

Structural variables	Observed variables	SD coefficients	P	Structural variables	Observed variables	SD coefficients	P
Outer packaging design	12. The Smoothness of the cigarette box cable	0.721	***	Internal taste	46. Smoke Concentration	0.765	***
	13. The sound of the BOPP tearing and pulling	0.72	***		41. The Original aroma of tobacco	0.729	
	14. Conveniently open the cigarette pack	0.709	***		43. Strength	0.726	***
	6. The sound of the cigarette pack opening and closing	0.694	***		47. Offensive odor	0.706	***
	9. The pattern/color of the cigarette box	0.69			45. Irritation	0.699	***
Quality perception	5. Difficulty in opening the cigarette pack	0.669	***	Smoking Experience	49. Draw resistance	0.744	***
	4. Cigarette pack appearance color	0.668	***		48. Aftertaste	0.729	***
	7. Removing the cigarette box is simple	0.657	***		59.Consistent flavor throughout the entire cigarette	0.718	***
	34. Cigarette smell	0.762	***		50. The ash wrap	0.711	***
	29. The color of cigarette paper	0.76	***		54. Burning rate	0.708	***
	27. The color of cut tobacco	0.755	***	Innovative design	53. Dropping cigarette ends	0.699	***
	37. Filter and lip contact for comfort	0.747	***		56. The dryness of the mouth after smoking	0.697	
	22. The smell of opening cigarette box	0.739	***		52 Extinguish the cigarette	0.692	***
	31. Perception of cigarette quality	0.728	***		55. The stem affects combustion	0.679	***
	21. The appearance of the inner-frame paper	0.726	***		64. Tobacco dropped while carrying it	0.644	***
	30. Pattern/grain of cigarette paper	0.725	***		62. Cigarette case is not easily damaged/flattened/deformed	0.467	***
	51. Ash color	0.724	***		38. the distinctive flavor of filter tip (sweet)	0.668	
	32. The length and thickness of the cigarette	0.722	***		15. Unique way of opening (as below, side opening, etc.)	0.609	***
	19. The appearance of the Inner lining paper	0.72	***		42. The distinctive aroma of tobacco	0.607	***
	20. Conveniently of the Inner lining paper	0.719	***		17. Unique cigarette arrangement design (e.g., double chamber, 16 cigarettes)	0.595	***
	33. Moisture content of cigarettes	0.709	***		26. Special filter design	0.533	***
	25. The Hardness and softness of the filter	0.702	***	Product name	2. The name is easy to remember and spread	0.783	***
	61. The package size makes it easy to hold and carry	0.694	***		1. The name is easy to understand	0.754	***
	63. The taste stays the same after opening (e.g. within 2 days)	0.685			3. The name of good moral	0.69	***

The findings align with Spence et al. (2014), who emphasize the significance of airflow resistance and taste consistency. Structural optimizations, such as those suggested by Diaz et al. (2022) and Wei et al. (2023) to refine subjective perceptions, are essential for fostering loyalty and enhancing product appeal.

The Effect of Innovative Design on Internal Taste and Product Name

Innovative design plays a pivotal role in driving consumer preference by enhancing sensory experiences and brand efficacy. The results indicate that Innovative Design has a substantial effect on Internal Taste (standardized coefficient = 0.717), underscoring the importance of sensory-focused innovations. These innovations, such as distinctive flavors of filter tips or unique ways of opening, shift attention from traditional branding to product attributes as quality signals.

As highlighted by Barrena et al. (2021) and Fahad et al. (2019), the synergy between design innovation and brand strategy is crucial. Integrating innovation with branding, as advocated by Keller and Swaminathan (2020), strengthens consumer perception and market differentiation. Furthermore, the significant influence of Innovative Design on Outer Packaging Design (standardized coefficient = 0.867) and Product Name (0.523) emphasizes the interconnectedness of these elements in shaping consumer experiences.

The Effect of Product Name on Internal Taste

Product names play a critical role in shaping sensory expectations and brand recall. Evocative names can enhance flavor perception and satisfaction, even when product quality remains unchanged. The results indicate that Product Name has a significant influence on Internal Taste (standardized coefficient = 0.164), albeit less substantial compared to Innovative Design. However, the high coefficients for Ease of Remembering and Spreading (0.783) and Ease of Understanding (0.754) highlight the strategic value of naming in driving purchase behavior.

Consistent with Shehzad et al. (2014) and Morris (2018), names aligned with sensory attributes reinforce consumer-brand alignment, emphasizing the importance of strategic naming in the context of smoking products.

The Combined Effects of Quality Perception and Smoking Experience on Satisfaction

The combined effects of Quality Perception and Smoking Experience significantly impact Overall Satisfaction. While Smoking Experience has a highly significant path coefficient for Overall Satisfaction, Quality Perception also plays a crucial role, primarily influenced by Outer Packaging Design and Smoking Experience. The results underscore the importance of a coordinated approach to product development, integrating sensory elements that align with consumer emotions.

As highlighted by Saluja (2024) and Yamini (2024), multisensory retail environments significantly impact emotional engagement and perceived quality. Ghanbari et al. (2024) further emphasize how sensory experiences drive decision-making, urging brands to align these elements with consumer emotions to enhance satisfaction.

Interconnected Roles of Outer Packaging Design, Innovative Design, and Product Name

The interplay between Outer Packaging Design, Innovative Design, and Product Name underscores the need for cohesive sensory-branding strategies. The results indicate significant mutual influences among these elements, emphasizing the importance of a comprehensive design approach. For instance, Outer Packaging Design has a substantial effect on Innovative Design (standardized coefficient = 0.867) and Product Name (0.645).

Managerial Implication

Tobacco companies should prioritize sensory-driven innovation to enhance the smoking experience and build brand loyalty. By investing in design features such as flavored filters, easy-to-open packaging mechanisms, and aroma-enhancing technologies, manufacturers can create differentiated products that elevate consumer satisfaction. These innovations not only amplify perceptions of novelty and quality but also foster emotional connections with the brand, positioning companies to capitalize on the growing demand for unique and multisensory smoking experiences. Simultaneously, optimizing outer packaging design is critical to shaping first impressions and perceived value. Tactile elements like smooth finishes, auditory

cues such as the satisfying sound of tearing BOPP film, and ergonomic unboxing mechanisms collectively reinforce premium quality expectations. Aligning these sensory attributes with memorable product names such as those evoking taste or aroma profiles strengthens brand recall and market positioning. For example, names like “Crisp Mint” or “Velvet Blend” can subliminally enhance flavor expectations, as demonstrated by Shehzad et al. (2014).

However, innovation must be balanced with ethical responsibility. Transparent health communication, including clear risk disclosures on packaging and marketing materials, is essential to address public health concerns and build consumer trust. A dual strategy combining sensory-driven product development with proactive health education enables companies to align business objectives with societal expectations. By integrating these approaches, tobacco firms can navigate evolving regulatory landscapes while maintaining competitiveness in a market increasingly defined by experiential differentiation.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The results highlight the importance of sensory attributes, such as the smoothness and sound of cigarette packaging, smoke concentration, and aroma, in enhancing the overall consumer experience. These findings offer fresh insight and empirical evidence for cigarette companies looking to innovate and differentiate their products in a competitive market. Firstly, the key factors of the smoking experience, particularly internal taste and packaging design, significantly influence overall consumer satisfaction. Improving the internal taste especially smoke concentration and the original aroma is crucial for enhancing the smoking experience. Secondly, the tactile and auditory features of packaging, such as ease of opening and the sound produced when opening the package, as well as innovative design elements like the distinctive flavor of the filter tip, have a considerable impact on consumer sensory experience. These aspects should be prioritized in product development.

Quality perception, including attributes like cigarette smell and paper color, also significantly shapes consumers’ perceptions of product quality. This emphasizes the importance of sensory marketing in cigarette product innovation. The ability to remember and share the product name also significantly influences brand recognition and consumer loyalty, highlighting the need for effective branding strategies. In conclusion, this study underscores the significance of sensory and emotional factors in cigarette consumption experiences. It also provides a theoretical basis for developing a consumer-centered evaluation system in the tobacco industry. This framework can assist tobacco companies in better understanding and meeting consumer needs, thereby enhancing product competitiveness, driving innovation, and fostering brand differentiation.

Recommendations

Future research should validate these findings across diverse cultural contexts, particularly in non-Chinese markets, to account for regional variations in preferences for tobacco taste, packaging aesthetics, and consumption rituals. For example, strategies effective in China such as specific sensory cues or naming conventions may not resonate in Western or Southeast Asian markets due to differing cultural norms or regulatory environments (e.g., plain packaging laws in Australia). Additionally, studies should integrate external variables such as economic shifts, regulatory changes, and evolving market trends to better contextualize how sensory design interacts with broader societal factors. Expanding demographic sampling to include diverse age groups, smoking frequencies (e.g., heavy vs. occasional users), and socio-economic backgrounds would further clarify how sensory innovations influence loyalty and satisfaction. Longitudinal analyses could also track evolving preferences, especially as health concerns or product innovations reshape consumer behavior. Finally, exploring complementary factors like brand storytelling, retail environments, and multisensory advertising campaigns would provide a more holistic understanding of consumer decision-making, bridging gaps between sensory design and broader marketing strategies.

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