

Article

Exploring Aesthetic Elements of Spring Imagery and Floral Design from Consumer's Perspective

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Abstract: We investigated the aesthetic elements of spring imagery and floral design from the perspective of consumers and examined how these elements affected consumer preferences and satisfaction levels. Using the evaluation grid method (EGM) method and the Kano model, we delineated and appraised essential aesthetic components that are inherent in spring imagery. An IPA analysis was employed to deepen the understanding of their impact on consumer perceptions. The results indicated that the fundamental aesthetic elements of spring imagery, including rhythm, romance, a sense of happiness, and idyllic beauty, played a pivotal role in enhancing the allure of floral designs and boosting consumer satisfaction. The IPA analysis result underscored the significance of the vibrancy, vitality, and innovation in color schemes, which consumers particularly cherished in the context of spring imagery. Additionally, key qualitative elements such as 'Vibrant Colors', 'Sense of Rhythm', 'Thriving', 'Romantic', 'Energetic Imagery', 'Imagery of Happiness', and 'Poetic and Picturesque' were highlighted which have not yet been fully actualized in contemporary floral design practices. The results suggested future enhancements and offered a reference for floral designers to understand and meet consumer expectations related to spring imagery and create more captivating and satisfying floral creations. Furthermore, these findings provided theoretical and empirical foundations for academic research in related disciplines, enhancing the understanding of the critical elements in floral design.

Keywords: Imagery of spring, Floral design, Aesthetic elements, Kano model

1. Introduction

In contemporary society, the prominence of aesthetics and design has increased consumer demand for aesthetically appealing products. Accordingly, floral design which marries natural beauty with artistic innovation, has attracted extensive attention. The imagery of spring, characterized by its vibrant and compelling natural themes, is particularly favored in floral design by both consumers and designers. Nonetheless, a significant gap exists in the research on the impact of spring imagery on floral design and the consequent perception by consumers. Key questions are asked about the preferences and satisfaction levels of consumers with the aesthetic elements of spring imagery and the influence of these elements on the attractiveness of floral designs in the market. Addressing these inquiries is essential for comprehending consumer demands and market trends in floral design. Thus, we examined the aesthetic elements of spring imagery and floral design from the perspective of the consumer in this study. Using the EGM method and the Kano model, we assessed the role of spring imagery in floral design to thoroughly understand consumer attitudes and preferences related to the design elements using an importance-performance analysis (IPA).

2. Materials and Methods

2.1. Floral Design

Han (2022) asserted that floral design, a longstanding element of human life, merits attention, particularly concerning artistic flower baskets used in celebratory and funeral contexts. Hsu (2012) investigated the consumer's psychological valuation of floricultural products and the effects of integrating color and design into stimulating consumer purchases. He concluded that the aesthetic appeal of floral compositions was intricately linked to color design and positively correlated with consumer consumption. Chen (2017) explored how independent coffee shops enhanced their spatial allure by incorporating elements of floral design and found that color design and focal contrast formed the crux of attraction in floral arrangements and spatial settings. Chiu (2017) employed the evaluation grid method (EGM) to identify key charm factors in religious festival floral art. His results offered insights for design and styling in this domain. Through floral design, the intrinsic beauty of flora is showcased, conveying the essence of life's

continuity and disseminating beauty and emotion across various realms. Huang (2021) articulated the introspection and perception in floral artistry from life experiences and natural observations. The discourse, substantiated by practical creations and ambient spatial installations, demonstrated the experience of a 'Zen state' characterized by a profound sense of emptiness yet filled with wonder. Collectively, these studies suggested that floral design, as an art form blending natural aesthetics and human sentiment, engendered pleasant and harmonious atmospheres in various spaces. The increasing value of floral design in contemporary society is underscored by the growing demand for beauty and enhanced quality of life. However, floral design research has not been sufficiently conducted from the consumer perspective. Spring, emblematic of hope, renewal, and vitality, frequently inspires floral design. Existing studies, though, concentrated on the technical aspects such as material selection, form, and color coordination, with a notable lack of in-depth exploration into consumer expectations and perceptions regarding spring-themed floral designs.

2.2. Kano Model

Since its development by Noriaki Kano in 1984, the Kano model has become an integral tool for deciphering the intricate relationship between customer satisfaction and product quality. This model is invaluable in fields requiring innovation and aesthetics such as floral design. It adeptly provides profound insights into the impacts of quality attributes on customer satisfaction, even with subtle improvements (Kano et al., 1984; Matzler & Hinterhuber, 1998). The Kano model categorizes product and service attributes into five distinct types (Fig. 1): must-be, one-dimensional, attractive, indifferent, and reverse attributes. Each category exerts varying degrees of influence on customer satisfaction. In floral design, for example, the use of fresh floral materials can be categorized as a must-be attribute, whereas the elements of innovative design are classified as attractive attributes to enhance customer satisfaction (Berger et al., 1992). The model's practical application entails surveys to identify and categorize customer needs. These surveys typically comprise dual sets of questions, one set assessing consumer satisfaction when quality attributes are present and the other when they are absent, thus clearly delineating the quality attributes (Matzler & Hinterhuber, 1998).

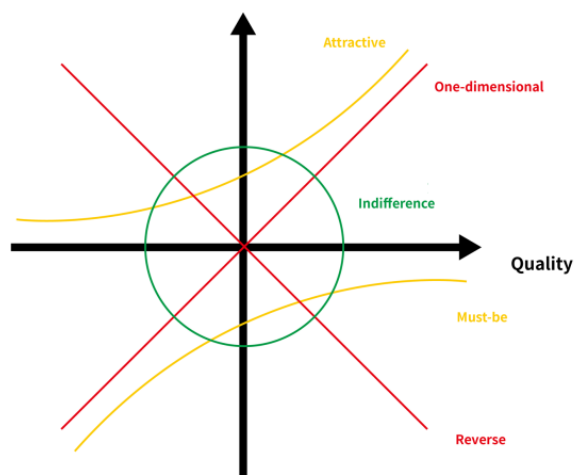


Fig. 1. Kano model of customer satisfaction.

In essence, the Kano model not only equips product designers and market researchers with an efficacious strategy for classifying and comprehending consumer quality perceptions but also augments the reliability and accuracy of these classifications through statistical and regression analyses. The model can be used to boost customer satisfaction and foster long-term loyalty as an essential reference and guide for companies dedicated to customer satisfaction (Gorst et al., 1998; Kano et al., 1996; Kondo, 2001; Ting & Chen, 2002). In examining the aesthetic elements of spring imagery in floral design, the Kano model provides a vital perspective, particularly from the vantage point of the consumer. Spring imagery in floral design is often regarded as a crucial element for stimulating sensory responses and emotional connections. A thorough analysis with the Kano model is performed to discern which design attributes align most with consumer expectations of spring imagery, and further, how these attributes affect their overall satisfaction and emotional reactions.

Elements within spring imagery, such as types of flowers, colors, arrangements, and spring-related symbols, can be categorized into the attribute types of the Kano model. For instance, flowers can be must-be attributes due to their emblematic representation of spring while innovative layouts and design elements can be attractive attributes, imparting unique allure to the floral creations. This categorization aids floral designers in precisely understanding consumer expectations regarding spring imagery and allows for the creation of works that resonate deeply at an emotional level. Moreover, given the subjective nature of consumer responses to the

aesthetic elements of floral design, the Kano model's bidirectional survey approach is especially significant. This methodology requires collecting data on consumer perceptions and responses to varying representations of spring imagery in floral design.

3. Research Methodology

Two distinct phases were determined in this research to meticulously explore the sensory elements of spring imagery in floral design. The initial phase involved a series of in-depth interviews to elicit perceptions and conceptions of spring imagery from highly engaged participants in floral design. The interview cohort consisted of 18 individuals, encompassing seasoned floral designers, competition judges, enthusiasts, and frequent purchasers of floral products with 8 males and 10 females. The outcomes of these interviews were used to draw an attractiveness factor structure map, encapsulating the diversity of spring imagery in floral designs. To ascertain sample representativeness, we selected 25 floral design examples that conformed to a natural style theme. Each example was displayed in a color photograph of 20 × 20 cm, accompanied by descriptions of the materials and prominent characteristics. In the subsequent phase, based on insights gleaned from the initial interviews and a comprehensive literature review, a consumer questionnaire was developed following discussions and validation by a panel of experts with more than eight years of experience in design. Employing the KJ method, seven questions for the perceptions of spring imagery were created from the EGM interview. The questionnaire was distributed online via Google Forms in November 2022 to a targeted audience including artists and floral designers, and 68 valid responses were obtained. The reliability of the questionnaire was verified using SPSS.17 software with a Cronbach's α of 0.886, indicating high reliability. Simultaneously, an IPA questionnaire was distributed to a diverse group, including artists, lawyers, professional floral designers, educators, and graduate students in floral art, yielding 25 valid responses. The Cronbach's α value for the IPA questionnaire was 0.972, and all questions were retained. This method was carefully crafted to ensure the wide applicability and robust reliability of the research findings and offer a solid reference for future floral designs inspired by the theme of spring imagery.

4. Results and Discussion

4.1. EGM Interview

EGM was used to probe the role of spring imagery in floral design and its influence as a charm factor in terms of sensory impact on professionals and consumers. In structured interviews with 18 participants, including floral designers, judges, and flower enthusiasts, a multi-dimensional interpretation was gleaned for the utilization of spring imagery in design. The results from these EGM interviews underscored the profound influence of spring imagery on the aesthetics of floral design (Fig. 2). Spring, often symbolizing rebirth and hope across cultures, distinctively imparts its vibrant and optimistic essence into floral design. The employment of colors is pivotal in conveying this seasonal imagery, where vivid hues not only augment visual attraction but also stimulate emotional responses. They also evoke joy and happiness associated with spring. In floral design, the palette and color combinations, such as soft cherry blossom pink, refreshing grass green, and bright sky blue, are used to convey the essence of spring and elicit feelings of contentment and delight. Floral designs must manifest harmony and balance by extending them using the amalgamation of colors and arrangement of forms and incorporating natural elements. Then, spring's vitality and renewal can be vivid in creations. This harmonious and sensory approach to design, through a combination of visual imagery and styling, resonates emotionally with consumers, connecting the design with their life experiences. Such resonance is derived from memories of spring's warm sunshine, green foliage, or gentle breezes, subtly conveyed through the design, evoking a longing for rejuvenation and hope.

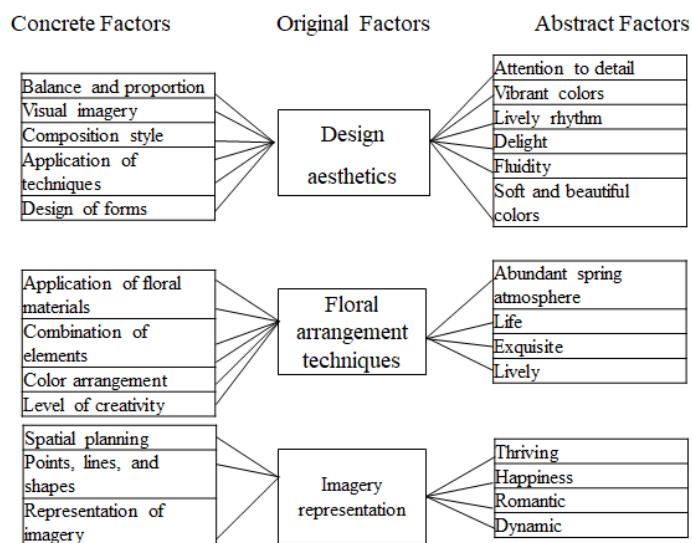


Fig. 2. Kano model of customer satisfaction.

Innovation in floral arrangement techniques demonstrates how designers amalgamate traditional methods with contemporary concepts. The exquisite attention to detail and pursuit of quality make floral designs not only visually enriching but also emotionally appealing and collectively embody the beauty of spring’s vitality and create novel and engaging works. Spring imagery in floral design conveys life’s vigor and nature’s exuberance. The choice of flowers along with the designers’ creative acumen, is paramount. The selection and application of floral materials reflect technical mastery and ingenuity, echoing how designers interpret the essence of spring. These design elements, be it a bud and a shoot or a soft beam of light, are integrated into the design narrative, forming an aesthetic and storied entirety. In this process, colors become key to crafting spring imagery beyond mere visual pairing to delve into the cultural and psychological connotations, where subtle shades such as pastel pink evoke softness and youth, while bright yellow conveys warmth and energy.

In terms of imagery representation, the artistic deployment of points, lines, and planes reveals how designers utilize spring imagery’s visual language to convey stories and emotions. The composition of these visual elements not only reflects the design’s artistry but also establishes a connection for emotional exchange with the audience. For instance, a sequence of meticulously arranged flowers on curvaceous branches symbolizes life’s continuity and spring’s flourishing growth. These visual narratives articulate the story of spring in design language and invoke profound associations with vibrancy, happiness, romance, and ambiance.

Dynamism and agility imbue floral designs with energy and liveliness. Through the fluidity of movement and rhythm of lines, floral artworks convey visual pleasure and excitement, showcasing the designer’s meticulous planning in spatial arrangement and composition. Harmonious visual effects and precise proportioning create a balanced and comfortable sensation, allowing viewers to experience a sense of inner peace and equilibrium. Romantic elements and visual imagery in floral design craft an enchanting and romantic atmosphere. Skillful color scheme application and innovative visual presentations imbue each piece with poetic and romantic nuances, transforming floral artworks into not just artistic pieces but also mediums that evoke emotional resonance. This blend of aesthetics and surprise transcends the mere decorative function of floral design, elevating it to a medium for emotional expression and storytelling.

The EGM interview results indicated the respondents’ sensory and aesthetic responses to the manifestation of spring imagery in floral design. Through detailed analysis, how spring imagery was applied in professional design and how it resonated with the broader consumer’s sensory experiences were comprehended. The result provided new insights for academic research and practice in floral design. The in-depth investigation results highlighted the multifaceted role of spring imagery in floral design, encompassing aesthetic harmony and balance, and how the selection of flowers, arrangement, colors, and shapes conveyed the emotions and stories of spring. These findings offer a theoretical base and practical guide for floral design teaching and creation, leading designers to create works filled with vitality and emotional depth.

4.2. Kano Model

4.2.1. Kano Model Classification

In contemporary floral design research, the Kano model is an effective tool for assessing consumer needs and satisfaction by clarifying the quality attributes associated with spring imagery. The statistical results from the Kano bidirectional questionnaire in

this study (Table 1) demonstrated that contemporary audiences or consumers expected artistic creations rich in spring imagery to surpass traditional technical proficiency. In Table 1, the use of a gray background highlights the attributes with the highest proportion based on the mode in the Kano quality classification, indicating the predominant consumer preference. 'Sense of Rhythm' was a key element of charm quality. It encompassed more than the display of dynamic beauty in floral design and deeply reflected the harmonious resonance between the design and the natural essence of spring. The ability to evoke the rhythm of the spring breeze is intricately linked to the movement of flowers, the arrangement of leaves, and the play of colors by representing life's rhythm and demanding designers to carefully craft each detail to convey the unique vitality of spring. The attribute 'Romantic' in floral design extended beyond sweetness or dreaminess, involving the emotional depth and cultural significance conveyed by the artwork. Romance, as an expression of emotion, was transformed through the artistic utilization of color, form, and texture into an experience that visually, and spiritually touched viewers and encapsulated the gentleness, rebirth, and hope of spring imagery. Therefore, romance served not only as a stylistic choice but also as a means of emotional resonance with the audience. The 'Imagery of Happiness' as a quality attribute artistically symbolized spring as an emblem of joy and an ideal life. It provided not just visual pleasure but also conveyed a deeper spiritual longing and pursuit of a happy life. Whether through a beam of light or a trembling leaf, this imagery of happiness enriched the design more than just decorative but a vessel of emotions and stories.

In summary, the charm and performance elements of spring imagery in floral design were used to collectively establish the framework of consumer expectations for artistic works. Performance quality elements including 'Vibrant Colors', 'Thriving', and 'Energetic Imagery' were fundamental expectations as the core elements of the artwork. In contrast, charm quality elements such as 'Sense of Rhythm', 'Romantic', and 'Imagery of Happiness' along with others, enhanced the piece's appeal and emotional richness as they were vital for creators in designing future works. The outcomes of the Kano model analysis provided new insights for the floral design field for academic research and creative practice, enriching our understanding of how spring imagery is reinterpreted and portrayed in contemporary artistic creations.

Table 1. Classification in Kano model.

Factor items	Weighted Classification of Kano Quality Attributes (%)						Kano quality classification
	M	O	I	A	Q	R	
1. Vibrant colors	5.9	36.8	5.9	33.8	16.2	1.5	O
2. Sense of rhythm	0.0	20.6	29.4	30.9	17.7	1.5	A
3. Thriving	7.4	32.4	17.7	27.9	11.8	2.9	O
4. Romantic	7.4	23.5	7.4	41.2	19.1	1.5	A
5. Energetic imagery	8.8	30.9	11.8	29.4	17.7	1.5	O
6. Imagery of happiness	5.9	26.5	11.8	38.2	17.7	0.0	A

4.2.2. Kano Weighting Method

By using the "customer satisfaction coefficient," the degree to which the "adequacy of quality" influences consumer satisfaction or dissatisfaction can be understood. This coefficient presents the level of satisfaction resulting from adequate quality and the level of dissatisfaction caused by inadequate quality. The customer satisfaction coefficient comprises two components: the "extent of satisfaction" and the "extent of dissatisfaction" (Berger et al., 1993).

$$\text{[extent of satisfaction]} : (A + O) / (A + O + M + I) \tag{1}$$

$$\text{[extent of dissatisfaction]} : -(M + O) / (A + O + M + I) \tag{2}$$

The abbreviations A, O, M, and I denote the different classifications of quality attributes in the Kano Model. A corresponds to attractive quality attributes, O corresponds to one-dimensional quality attributes, M corresponds to must-be quality attributes, and I corresponds to indifferent quality attributes (occurrence).

We used the Kano model for an in-depth analysis of the quality attributes of spring imagery in floral design. As indicated in Table 2, the satisfaction coefficients (CS) of various quality attributes were examined. According to Sireli, Kauffmann, and Ozan (2007), a weighting method within the Kano model was proposed with the assumption that "satisfaction improvement" and "dissatisfaction avoidance" had equal importance in determining customer satisfaction. In the method, the "extent of satisfaction coefficient" (CS) was compared with the "extent of dissatisfaction coefficient" (CD) (Eq. (3)) to identify the coefficient with the greatest impact (the absolute value is larger).

Initially, the quality attributes with no difference were excluded. The weighting values for the remaining attributes were determined using Eq. (4). CS_i is means "extent of satisfaction coefficient" for the i -th quality attribute, CD_i is means "extent of dissatisfaction coefficient", $i \in \{1, 2, \dots, m\}$, C_i as the maximum CS or DS value, W_i as the representative weight value of that attribute.

$$C_i = \text{Max} \left[\frac{CS_i}{\sum_1^m CS_i}, \frac{CD_i}{\sum_1^m CD_i} \right] \tag{3}$$

$$W_i = \frac{C_i}{\sum_1^m C_i} \tag{4}$$

In contemporary floral design, consumer perceptions of artworks extend beyond mere surface aesthetic appreciation, aspiring for creations that evoke inner emotions and resonate with personal life experiences. This trend is particularly prominent in floral designs themed of spring. Employing the Kano model for a weighted analysis of quality attributes associated with spring imagery, we determined key factors influencing consumer satisfaction. Table 3 shows the weights in the Kano model which present the relative significance of various elements of the sensory design of spring imagery, elucidating the varying impacts of these elements on customer satisfaction. 'Vibrant Colors' exhibited the highest weight (0.166) among the sensory design elements, signifying a substantial contribution to customer satisfaction in spring-themed floral designs (Table 2). This prominence reflects the paramount role of color in visual arts, as well as its central function in eliciting emotional responses associated with spring.

The weight of 'Sense of Rhythm' (0.11) was lower but remained crucial as it pertained to the dynamic and harmonious aspects of the design. This element influenced overall customer perception and acceptance. The weights for 'Thriving' (0.15) and 'Romantic' (0.14) highlighted their importance in conveying the liveliness and emotional connections inherent in spring, enhancing both the aesthetic appeal and emotional resonance of the designs. Weights for 'Energetic Imagery' (0.156) and 'Imagery of Happiness' (0.136) demonstrated their significant role in fostering a positive emotional ambiance. The weight of 'Poetic and Picturesque' (0.142) emphasized the importance of creating designs with aesthetic depth and emotional richness, aligning with customers' expectations for refined and profound beauty. The elements 'Sense of Rhythm', 'Thriving', 'Romantic', 'Vibrant Colors', 'Energetic Imagery', 'Imagery of Happiness', and 'Poetic and Picturesque' contributed significantly to customer satisfaction, with Kano weights ranging from 0.11 to 0.156. These values enhanced customer perceptual value and satisfaction through the nuanced pairing of sensory elements. Elements such as 'Thriving' and 'Romantic', directly linked to the themes of rebirth and vitality characteristic of spring, along with 'Vibrant Colors' and 'Imagery of Happiness' were associated with positive emotions and psychological responses and uplifted design atmosphere. 'Poetic and Picturesque' provided a sense of aesthetic fulfillment and an escape from the ordinary, which is vital for customer satisfaction on both visual and emotional levels. Such results illustrated the relative importance of each sensory element in spring-themed floral design and provided a reference for designers. Based on the results, designers can prioritize elements that most significantly impact customer satisfaction, while also improvements of those elements though underperforming are crucial for customer satisfaction. Such strategic approaches assist designers in creating more appealing floral artworks and enhancing overall customer satisfaction.

In summary, the result of the Kano model application in this study clarified the significance of each quality attribute of spring imagery in floral design, offering insights into how to harmonize consumer psychological needs with their actual experiences. The outcomes of the analysis provide a basis for floral designs to fulfill visual aesthetics and deeply engage consumers' inner worlds for heightened market recognition and satisfaction.

Table 2: Determination of Quality Attributes and Weight of Satisfaction Coefficients

Factor items	CS	DS	CS/SUM	DS/SUM	MAX	Kano Weighting
1.Vibrant colors	0.860	-0.520	0.160	0.179	0.179	0.166
2.Sense of rhythm	0.640	-0.250	0.119	0.086	0.119	0.110
3.Thriving	0.710	-0.470	0.132	0.162	0.162	0.150
4.Romantic	0.810	-0.390	0.151	0.134	0.151	0.140
5.Energetic imagery	0.750	-0.490	0.139	0.168	0.168	0.156
6.Imagery of happiness	0.790	-0.390	0.147	0.134	0.147	0.136
7.Poetic and picturesque	0.820	-0.400	0.152	0.137	0.152	0.142

4.3 IPA

In modern floral design, consumer perceptions have extended beyond mere aesthetic appreciation to a deeper yearning for emotional resonance and connection with personal life experiences particularly in spring-themed designs. Traditional approaches to quality improvement in floral design have often been limited to the subjective perceptions of designers as they overlook the consumer's perspective. By employing IPA from the consumer's viewpoint, we evaluated the quality of spring imagery in floral

display designs, providing an objective reference for enhancing quality. The IPA results for floral design quality attributes (Table 3) indicated that one quality dimension in Quadrant I (Area of Sustained Strength) was '5. Energetic Imagery'. This demonstrated that consumers regarded these design quality elements as highly significant and were highly satisfied with their performance. In these elements, the quality of floral design was important, suggesting the inclusion of these significant elements in future design quality enhancements. Two quality dimensions fell into Quadrant II: '1. Vibrant Colors' and '3. Thriving', identified as areas for 'Enhanced Improvement'. Here, consumers perceived the importance of these floral design quality attributes to be greater than their current satisfaction levels. Two dimensions were found in Quadrant III (Low Priority for Improvement): '2. Sense of Rhythm' and '6. Imagery of Happiness', indicating these service quality aspects were perceived as less important and also garner less satisfaction with a lower priority for improvement. Quadrant IV (Possible Overemphasis) included two quality dimensions: '4. Romantic' and '7. Poetic and Picturesque', where consumers perceived these service quality elements as less important while their satisfaction levels were high. This result suggested that current services adequately met consumer needs in these areas. It is necessary to consider not over-investing in these attributes and instead focus on enhancing other areas.

The service quality elements in Quadrants II, III, and IV can be improved based on business capability and resources to enhance consumer satisfaction. The following is required for the floral design elements.

1. 'Vibrant colors' (Quadrant II): When importance exceeds satisfaction potentially due to the consumer's higher expectation for color diversity and combinations, current floral designs do not fully meet the expectation. Companies must explore more innovative color combinations and design styles to increase visual satisfaction.
2. 'Sense of rhythm' (Quadrant III): With low importance and satisfaction, this attribute is not a primary focus for consumers. It is required to conduct market research and enhance this attribute to create differentiated services or decide to allocate resources to other more important attributes.
3. 'Thriving' (Quadrant II): Consumers find this attribute important but the current satisfaction level is low. This is related to the freshness and vitality of the flowers, and it is necessary to focus on product quality management to ensure the freshest and best-conditioned flowers are provided to consumers.
4. 'Romantic' (Quadrant IV): With satisfaction exceeding importance, this attribute already meets consumers' satisfaction or there is an oversupply in the market. It is not needed to invest heavily in this area but should focus on enhancing other attributes.
5. 'Energetic imagery' (Quadrant I): Scoring high in importance and satisfaction, this attribute is highly valued and satisfactory to consumers. It is required to maintain this advantage and consider it a focal point in market promotion.
6. 'Imagery of Happiness' (Quadrant III): With low importance and satisfaction, it is needed to enhance overall customer satisfaction and focus resources more on other attributes.
7. 'Poetic and Picturesque' (Quadrant IV): With satisfaction higher than importance, the current business performance in this attribute exceeds consumer expectations. It is necessary to maintain the status quo and examining whether resources can be reallocated to other attributes needing improvement.

Table 3 presents the IPA analysis results for floral design themed around spring imagery. The result highlighted the relative importance of each sensory element in spring-themed floral design and guided designers to optimize elements that significantly impact customer satisfaction and improve other elements that are important but underperforming. This strategic approach assists designers in creating more appealing floral artworks and enhancing overall customer satisfaction. The IPA analysis results thus provided a direction for future floral designs to secure visual aesthetics and resonate with consumers' emotions, thereby achieving higher market recognition and satisfaction.

Table 3. Results of IPA analysis for floral design with spring imagery.


	Importance (M=4.35)	Performance (M=3.72)	Quadrant
1. Vibrant colors	4.41	3.57	Quadrant II
2. Sense of rhythm	4.27	3.71	Quadrant III
3. Thriving	4.43	3.71	Quadrant II
4. Romantic	4.33	3.88	Quadrant IV
5. Energetic imagery	4.39	3.75	Quadrant I
6. Imagery of happiness	4.29	3.65	Quadrant III
7. Poetic and picturesque	4.29	3.80	Quadrant IV

Table 4 shows various key sensory design elements of spring imagery in floral design. Their performance was assessed using IPA, and the results indicated their distinct impact on customer satisfaction. Notably, differences in the importance indices (reward and penalty indices) revealed that certain elements, such as 'Sense of Rhythm' and 'Thriving', markedly enhanced customer satisfaction when effectively implemented, whereas poor execution led to significant dissatisfaction. This underscores the need for meticulous attention to these elements in the floral design process. In further analysis, the Range of Impact on Overall Customer Satisfaction (RIOCS) index was determined to quantify the combined positive and negative effects of these quality attributes. Elements including 'Vibrant Colors' and 'Poetic and Picturesque', demonstrated a substantial impact on customer satisfaction, suggesting a significant potential for optimization of a floral design. Satisfaction Generation Potential (SGP) and Dissatisfaction Generation Potential (DGP) were used to examine these sensory elements based on their positive and negative potentials concerning customer satisfaction. Elements such as 'Energetic Imagery' and 'Poetic and Picturesque' present the SGP performance, indicating that their effective incorporation in design can greatly boost customer satisfaction.

The Impact Asymmetry (IA) analysis was carried out to uncover the imbalanced influence of sensory elements on customer satisfaction in improvement and deterioration scenarios. Elements such as 'Romantic' and 'Thriving' displayed higher IA values, and showed variable impacts on customer satisfaction depending on their quality levels. This is critical information for floral designers in strategizing their design decisions.

Overall, these findings validated the effectiveness of the IPA method in exploring spring imagery in floral design and provided a basis for designers and marketers. By accurately mastering and applying these sensory elements, designers can create floral artworks that deeply resonate with consumers and elevate their satisfaction. Moreover, these results are good bases for academic research and industry, offering theoretical and empirical foundations to enhance the sensory quality of floral design. The analysis results allow for the understanding of different sensory elements and their contribution to the overall appeal and satisfaction of floral designs. Focusing on the key aspects enables, designers and marketers need to amplify the emotional and aesthetic impact of their creations and align with contemporary consumer preferences. Each element needs to be considered for its potential to captivate and satisfy customers.

Table 4. Floral Design Quality Analysis

Factor items	RI	PI	RIOCS	SGP	DGP	IA
1. Vibrant colors	0.000**	0.797 **	-0.797	0.000	1.000	-1.000
2. Sense of rhythm	0.681**	-0.301 *	0.982	0.693	0.307	0.387
3. Thriving	0.702**	-0.402**	1.104	0.636	0.364	0.272
4. Romantic	0.662**	-0.469**	1.131	0.585	0.415	0.171
5. Energetic imagery	0.672**	-0.409**	1.081	0.622	0.378	0.243
6. Imagery of happiness	0.551**	-0.544**	1.095	0.503	0.497	0.006
7. Poetic and picturesque	0.658**	-0.441 **	1.099	0.599	0.401	0.197

(* $p < 0.05$, ** $p < 0.01$)

5. Conclusions

We explored the sensory design elements of spring imagery in floral design, focusing on their impact on consumer preferences and satisfaction. By using the EGM and Kano model, we determined the multifaceted influences of spring imagery in floral design, which were elucidated through IPA. The findings showed the key sensory elements of spring imagery such as 'Sense of Rhythm', 'Romantic', 'Imagery of Happiness', and 'Poetic and Picturesque' depictions which are important in attracting consumers and enhancing their satisfaction levels. Notably, 'Vibrant Colors', 'Thriving', and the innovativeness of color significantly influenced the creation of positive emotional environments. Additionally, the IPA analysis results pointed out that 'Energetic Imagery' and 'Vibrant Colors' were highly valued by consumers and showed potential for improvement in their execution. These results offer invaluable guidance for floral designers and marketers to better meet consumer expectations related to spring imagery and create more appealing floral artwork. Such findings enable designers to strategically refine elements that greatly impact customer satisfaction and improve overall design quality and market competitiveness. The diverse role of spring imagery in floral design and its significant impact on consumers' sensory experiences and satisfaction levels were revealed through this study. These findings not only provide a fresh theoretical foundation for floral design, and for future creative works and academic research.

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