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Exploring the Multisensory Attractiveness of Cosmetic Packaging: A Study of Visual and Tactile Design Elements and Attractiveness Factors

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Abstract: The prevalence of e-commerce has led to a significant increase in online shopping among consumers, resulting in a surge in returns due to discrepancies between received products and consumer expectations. To resolve this issue, many retailers resort to disposing of returned items, contributing to wastage and environmental pollution, thereby obstructing the path to environmental sustainability. Understanding consumer expectations during the design phase holds promise for addressing this challenge. While most designers still primarily consider the visual aspect, they often overlook the emotional experiences and overall evaluations emphasized by consumers through tactile sensations during product usage. Therefore, this study employs the Miryoku Engineering approach to explore the visual and tactile attractiveness aspects and elements of cosmetic box designs for young women aged 20–30 in Taiwan. Through Evaluation Grid Method interviews, 4 attractiveness styles, 7 original attractiveness evaluations, and 35 specific conditions were identified. The results show that tactile sensations can compensate for the limitations of visual evaluations when assessing products. Participants with extensive makeup experience tended to evaluate cosmetic boxes based on both visual and tactile sensations, whereas those with moderate makeup experience focused on visual sensations and functionality. The selection of materials that prioritize sustainability and reusability in the design of cosmetic packaging can enhance brand image. In addition, this study elaborates on the visual and tactile aspects of cosmetic box designs that attract young women aged 20–30 in Taiwan. The aim is to provide future designers with insights from this study to meet young consumers' expectations regarding the tactile and usage experience of cosmetics, thereby addressing the issue of high return rates, achieving the vision of sustainable development, and fulfilling the United Nations Sustainable Development Goal 12.5.

Keywords: Miryoku Engineering; Evaluation Grid Method; cosmetic box; visual; tactile; texture

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1. Introduction

The rise of e-commerce and the global impact of the COVID-19 pandemic have reshaped consumer shopping behaviors, with a significant shift from physical stores to online platforms. In 2020, the online retail industry in the United States reached a revenue of USD 762.7 billion, marking a 98.9% increase from 2016 [1]. However, online shopping often results in a surge of returns due to discrepancies between product images and actual details, materials, usage, and expectations, leading to a phenomenon known as the "return tsunami" [2]. The National Retail Federation (NRF) reported a holiday return rate of up to 13%, amounting to nearly TWD 3 trillion in value [3]. Currently, factors such as high fuel costs, extensive inventory levels, and insufficient manpower for handling returns have led to the disposal of the majority of returned items. In 2018, Amazon's French warehouses disposed of over 3 million items, with the cost of returns estimated to be 139 times

higher than disposal costs [4]. It is projected that annually, returned items contribute to 5.8 billion tons of waste [5], leading to environmental pollution and contradicting the United Nations Sustainable Development Goals (SDGs). Therefore, aligning products with consumer expectations aims to boost confidence in purchasing decisions, reduce return and stagnation rates, and mitigate environmental pollution and burdens, achieving the goals of environmental protection and sustainability, while underscoring the critical objective for product designers.

In the human experience of products, vision is often considered the primary sense [6], leading designers to attract consumers primarily through visual elements [7]. However, Schifferstien [8] indicates that while vision is the first sense through which a product is encountered, its importance diminishes afterward. Touch, the experience of the surface texture and operational sensations, compensates for the shortcomings in evaluating products by vision [9], highlighting the irreplaceability of tactile sensations in product evaluation. The combination of vision and touch enhances product evaluation more than either sense individually, emphasizing the importance of both senses in the product experience [10].

In the era of sensory consumption, consumers no longer seek only functionality and multitasking in products but also focus on the emotional experiences evoked during product usage to establish their personal style [11]. Compared to rational male consumers, females are more inclined to emotion-driven shopping decisions, particularly in the purchase of cosmetics [12]. Women place a greater emotional influence on the aesthetic beauty and tactile experience of products than on their functionality and information presentation [13]. Successful products like Giorgio Armani's lipstick, combining visual color with tactile delicacy, create a dual sensory experience and achieve high sales [14].

Owing to the trend of sensory shopping among women, the global cosmetics market is expected to reach USD 523.5 billion by 2028, with a Compound Annual Growth Rate of 5.5% from 2022 to 2028 [15]. To enhance consumer preferences and desire to purchase, cosmetics companies focus on improving visual effects (patterns, designs, colors, etc.) and tactile experiences (materials, patterns, surface treatments, etc.), offering consumers a richer sensory experience [16]. When design stimulates user preferences from a sensory and emotional perspective, satisfying the psychological and emotional needs of consumers not only increases satisfaction and pleasure, but also improves product ratings and usability, contributing to the creation of competitive products [17].

Therefore, this study takes an emotional approach and utilizes the Miryoku Engineering method to investigate the visual and tactile effects (shape, pattern, material, and surface treatment) of cosmetic box designs that attract young women in Taiwan. To establish guidelines for designing products for young women, this study aims to provide a reference for future cosmetic design. By planning cosmetic boxes that align with young women's expectations, the goal is to achieve sustainability by reducing return rates and the destruction of returned goods. The objectives of this study are: 1. investigating young women's preferences for cosmetic boxes; 2. identifying the attractiveness elements of cosmetic boxes in terms of their visual and tactile aspects; 3. analyzing the preferences and evaluation criteria for cosmetic boxes among users with varying levels of makeup experience; and 4. An experimental investigation using physical cosmetic packaging will be conducted to explore consumer preferences regarding material properties and processing methods, providing recommendations for future designers to engage in sustainability design.

2. Literature Review

2.1. Visual and Tactile

Consumer product evaluations are primarily driven by visual perception (60%), whereas tactile perception accounts for only 30% [6,18]. Accumulated life experiences allow the visual perception of material and texture details through object shapes, patterns, gloss, and other features. Designers and researchers tend to focus less on tactile sensations because of their emphasis on the visual aspects [7]. However, relying solely on visual perception to judge product shapes and surface textures may lead to misjudgments owing

to visual similarities in angles, lighting, and material appearances. Different processing methods of matte black cosmetic boxes (such as molding texture, spraying matte coating, applying elastomeric coating, and silicone) may appear very similar on an image, but they have distinct differences in touch and operation.

A surface with molding texture is rough, providing a gritty touch and increased friction, making it easy to open the box. Spraying matte coatings result in a smooth surface feel, making it difficult to open the box. The surface sprayed with elastic paint feels dense and warm, making it easy to open the lid.

In summary, judging products based solely on a visual evaluation may underestimate the actual evaluation results [8,10]. Tactile sensations significantly affect user experience, product usability, and emotional images, comparable to visual perception [19,20], and have a more pronounced effect on consumer purchase decisions [21]. When products are experienced through both the visual and tactile senses, emotional experiences become richer and stronger [22,23], effectively strengthening consumer preferences and increasing cognitive quality and willingness to repurchase [24].

Current research focuses predominantly on visual perception when investigating product material imagery [16], with less exploration of the sensory impressions of different senses of materials [25]. Pino et al. [16] found that most participants believed that tactile images in flat advertisements could enhance purchase rates. Rahman [26] indicated that denim fabric with a softer and smoother touch implies better quality, while a thicker texture suggests durability.

Further studies [24,27] demonstrated that combining visual and tactile experiences enhances consumer preferences, evaluations, and purchase motivations, thereby increasing product attractiveness [28]. Both Wang et al. [29] and Wang [30] highlighted the significance of designing sensory factors in products to meet consumers' psychological expectations. Thus, this study utilized physical cosmetic boxes as experimental samples. Through a dual-sensory experience involving sight and touch, Miryoku Engineering was applied to investigate the characteristics and elements of cosmetic box design, aesthetics, and texture.

2.2. Miryoku Engineering

The rise in emotional consumption trends has shifted consumer product choices beyond functionality, placing greater emphasis on satisfying psychological needs. Designers must prioritize emotional needs to create successful and attractive products [31]. Miryoku Engineering is dedicated to studying the relationship between consumer preferences and product design elements and to translating inner charm elements and sensory images into tangible design elements [32]. It serves as a medium of communication between designers and consumers [33]. Using consumer subjective preferences as a basis, it explores the attractiveness, perplexity, and infectiousness of products, using rigorous surveys and experiments to reveal the key factors and charm elements of successful products, which are then transformed into new product designs to meet consumer expectations [34,35].

Owing to the subjective yet vague nature of charm, traditional questionnaire surveys struggle to fully capture consumer thoughts. Sanui [36] proposed the Evaluation Grid Method (EGM), in which individuals with high involvement in a product are asked to group products based on their preferences. Interviews are then conducted between different preference groups to investigate their preference factors and characteristics through pairwise comparisons. Through interviews regarding differences in preference intensity, this method translates abstract concepts that are challenging to quantify or articulate and specific conditions into authentic, credible, and detailed personal evaluations and opinions [37]. The interview results are categorized as summit-level (abstract feelings or styles), middle-level (original evaluations), and bottom-level (specific conditions). These levels are connected to create an EGM diagram, which aids in the interpretation of the product's attractiveness facets and elements and can assist researchers and designers in gaining a deeper understanding of consumers' thoughts. This research method has been successfully applied in various fields such as products, services, and spatial design [38].

Currently, the EGM commonly uses interview samples in which respondents answer through recall/memory methods [39,40] or image samples [41,42]. However, the former may overlook important or key features, while the latter, due to its exclusive use of images, may lack a comprehensive exploration of all respondent thoughts due to its small size, inadequate resolution, or presentation of only a single perspective. Visual sensory evaluation results primarily focus on product appearance and color, making it challenging to gain insights into consumers' tactile experiences. Therefore, this study employs physical products as EGM interview samples and conducts an investigation using both visual and tactile senses to comprehensively explore the charm elements that attract young women to cosmetic boxes.

3. Materials and Methods

To explore the factors influencing young women's preferences for cosmetic boxes, we first collected and screened physical samples. Subsequently, the EGM interviews were conducted. Finally, the results of the interviews were synthesized and refined using the KJ and questionnaire survey methods. This analysis aims to identify the attractive elements of cosmetic boxes for young women.

3.1. Participants

To investigate the attractive elements of cosmetic boxes for young women aged 20–30 in Taiwan, and to ensure that designs meet consumer expectations to reduce the rate of returns and the destruction of goods from online shopping, this study recruited participants from focus groups, interviewees of EGM, and specific condition screening questionnaire respondents. According to relevant literature, Taiwanese online beauty consumers aged 20–29 have the highest percentage (64.2%) [43]. This age group is easily influenced by online media (such as Instagram, Facebook, influencers, and bloggers), leading to impulsive purchases, with a gradually increasing budget [44,45]. When there is a discrepancy between the product and expectations, returns occur. Additionally, Yahoo News [46] reports that the annual growth rate of beauty consumption among those aged 15–30 is 122%. Therefore, this study targeted Taiwanese women aged 20–30. The composition of the members and tasks for each experimental were as follows.

- Focus Groups: Five researchers with over five years of industrial design education, a high sensitivity to aesthetics and materials, and previous experience in conducting Miryoku Engineering research. The focus group was involved in physical sample screening and integration of the interview results.
- Interviewees of EGM: Through an online questionnaire on cosmetic involvement, we aimed to recruit 30 young women aged 20–30, with more than one year of makeup experience who habitually engaged in makeup. The interviewees participated in physical sample screening and EGM interviews.
- Specific Condition Screening Questionnaire Respondents: Due to the high number of specific conditions (221) identified in the EGM interview results, this study utilized a specific condition screening questionnaire to focus on the particular preferences of young women under each original attractiveness evaluation. A total of 111 young women aged 20–30 with makeup experience were recruited to participate in the survey. This approach effectively and comprehensively captures the specific conditions that influence young women's preferences for cosmetics.

In the subsequent chapters, the detailed experimental procedures for these three participant categories are described.

3.2. Sample Collection and Screening

This study aimed to investigate the preferences of young women for cosmetic boxes, considering their usage habits. Therefore, experimental samples were limited to powder cosmetic boxes and small palettes. A total of 198 samples were purchased from physical stores (department store counters and shopping malls), online channels (brand online shopping

platforms, beauty shopping platforms, online shopping, etc.), and cosmetics manufacturers, covering different brands, sizes, materials, processing forms, and functionalities.

The samples were subjected to two-stage screening. Initially, a focus group of five individuals viewed, touched, and used the samples and conducted similarity screening based on style, texture, and operational modes to retain representative samples. Subsequently, 30 interviewees performed preference screening by observing, touching, and using the samples, eliminating samples disliked by more than one-third of the participants, and 112 distinctive cosmetic boxes were selected as the final sample for the EGM interviews.

3.3. EGM Interview Procedure

In this phase, 30 young women aged 20–30, with over one year of makeup experience and a regular makeup routine, were recruited for individual interviews. The interviewers first explained the purpose and process of the experiments. The interviewees were asked to view, touch, and use the samples, categorizing them into liked, neutral, and disliked groups based on their preferences. The liked and disliked groups were further divided into three subgroups, forming a preference rating scale of 1–7. Subsequently, the interviewers compared the extremely liked and very liked groups by asking participants to describe the features they liked. This process was repeated for all groups to investigate the reasons and characteristics of the participants' preferences for cosmetic boxes.

During the interviews, the interviewers categorized the responses of the interviewees into middle-level (original evaluations) and further inquired about the feelings and specific conditions associated with these evaluations. These were then classified into summit-level (abstract concepts) and bottom-level (specific conditions) categories. Causal relationships were connected by lines to create an EGM diagram, providing an in-depth understanding of the attractive elements of the cosmetic boxes for the participants.

3.4. Integration of Interview Results

The five-person focus group used the KJ method to integrate the summit-level and middle-level interview results. The KJ method initially involves grouping vocabulary based on similarity, naming each group according to the characteristics of the vocabulary, and then reorganizing and renaming the groups based on the similarity of the vocabulary until each group is independent.

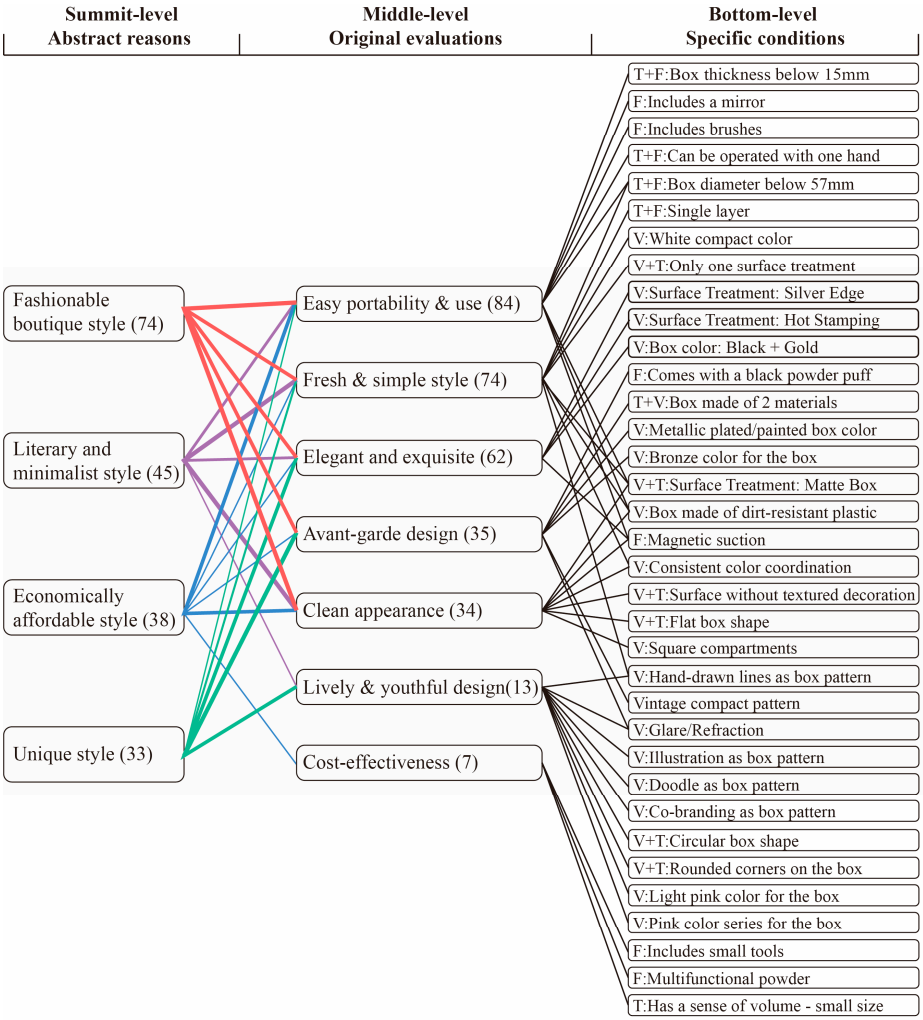
Summit-level integration resulted in four categories: 1. Fashionable boutique style: representing high quality, fashion, elegance, luxury, and status; 2. Literary and minimalist style: emerging and popular in Taiwanese culture, characterized by non-mainstream, natural, simple, refined, elegant, and melancholic qualities; 3. Economically affordable style: offering high cost–performance ratio, affordability, and practicality; and 4. Unique style. Middle-level integration included an easy portability and use, fresh and simple style (a term that emerged and became popular in Taiwanese culture, characterized by freshness, beauty, gentleness, quietness, elegance, naturalness, and simplicity), elegance and exquisite, avant-garde design, clean appearance, lively and youthful design, and cost-effectiveness. The researchers organized the connections between the summit, middle, and bottom levels, recorded the frequency of vocabulary mentioned by the interviewees, and completed an overall EGM diagram.

3.5. Specific Conditions—Screening Questionnaire Survey

In response to the large number of specific conditions (221) identified in the EGM interview results, a screening questionnaire was designed to effectively focus on the representative specific conditions of different cosmetic box styles. The questionnaire consisted of two parts: (1) Basic information: age and makeup experience, and (2) Specific conditions screening: investigating representative specific conditions for each original evaluation. For example, under "easy portability and use", the specific conditions included matte box, magnetic suction, includes a mirror, includes brushes, single-handed operation, among others, totaling 50 items. Respondents were asked to choose the 10 specific conditions that best

matched the original evaluation. This approach was used to investigate the representative specific conditions for seven original evaluations.

This study recruited 111 young women aged 20–30 in Taiwan with makeup experience to complete the questionnaire. Based on the statistical results, specific conditions with a selection rate exceeding 40% were retained, and an EGM diagram was constructed (Figure 1).



Note: In Specific conditions, V stands for Visual, T stands for Tactile, and F stands for Functionality.

Figure 1. EGM diagram. Numbers in parentheses indicate the frequency of terms mentioned by interviewees.

4. Results

4.1. Reliability Analysis

To ensure the reliability of the classification results of respondents' cosmetics preferences, a reliability analysis was conducted. Cronbach's alpha was found to be 0.95, indicating the trustworthiness of the survey results.

4.2. Cosmetic Box Clustering

To understand the respondents' preferences for cosmetic box types, a cluster analysis was performed on the preference ratings of the samples, yielding three clusters. Additionally, samples excluded during the sample collection and screening phases were categorized into a fourth cluster to compare the characteristics of respondents' preferences for cosmetic boxes (Table 1).

Table 1. Clustering results of cosmetic boxes.

Cluster	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Name	Elegant and Exquisite	Simple and Bright	Low-key and Classic	Colorful and Patterned
M	4.51	3.42	2.75	Deleted samples
N	20	22	35	35
Sample				

4.2.1. Cluster 1: Elegant and Exquisite

Visually, the box color of this cluster tends to be dark, the lid is often opaque, and a simple logo without additional decoration is placed at the center of the lid. Tactilely, it primarily features high-quality electroplating or composite materials. Functionally, the box emphasizes a medium size (palm-sized). This cluster provides users with a sense of elegance and professionalism in both visual and tactile experiences.

4.2.2. Cluster 2: Simple and Bright

Visually, the lids in this group are primarily composed of transparent materials, featuring windows (with opaque frames around the transparency center) or a combination of electroplating and UV coating, along with a larger-sized logo. These elements contribute to a bright and eye-catching visual impression, making it easy to view the powder inside, thus increasing likability. The bottom of the box is often made of injection-molded dark-colored plastic to enhance the brightness of the lid. Tactilely, the use of transparent acrylic materials or combined with electroplating and UV coating increases the surface texture, providing a non-slip and weighty feel. Functionally, the focus is on the small size of the cosmetic box, making it convenient for on-the-go use.

4.2.3. Cluster 3: Low-Key and Classic

Visually, the cosmetic boxes in this cluster often have matte and subtle colors, with a smaller logo printed on the edge of the lid. The design follows classic forms with rounded corners, creating a timeless and enduring style that may not immediately attract attention but is considered classic and durable. Tactilely, the surface is often matte, providing a smooth and comfortable feel. Some cosmetic boxes feature printed or molded patterns, giving the surface a textured feel that enhances tactile quality.

4.2.4. Cluster 4: Colorful and Patterned

Visually, this cluster features vibrant colors and often uses injection-molded plastics. The cosmetic box designs are distinctive and irregular, often featuring either no logo or a complex design with a large logo. Logos are typically created using hot stamping, which lacks tactile sensation, providing only a simple plastic texture to the touch. In terms of functionality, the cosmetic box size tends to be either larger or smaller, making them less convenient for single-handed use. This cluster stands out, attracting the attention of young girls, but may be perceived as having low quality and inexpensive, making it less favored by women aged 20–30.

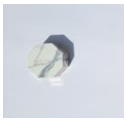
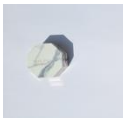
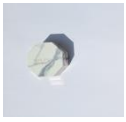
Based on the analysis results, respondents showed a preference for cosmetic box designs that are simple and bright in visual aesthetics. They favored dark-colored boxes with centrally placed logos. Regarding tactile sensations and functionality, they preferred

palm-sized cosmetic boxes with high-quality electroplating treatment, featuring a textured surface that prevents slipping and facilitates easy carrying and single-handed use while on the go. Conversely, they expressed a dislike for colorful designs, complex or oversized logos, and overly traditional or retro box shapes. This suggests that young women primarily use visual appearance and operational convenient tactile sensations as evaluation criteria.

4.3. Interviewee Clustering

To understand the preferences of respondents with different makeup experience for cosmetic boxes, a cluster analysis was performed based on their makeup experience, makeup occasions, weekly makeup frequency, and the number of cosmetic boxes owned. The respondents were divided into two clusters and the top five preferred cosmetic boxes for both groups were compared (Table 2).

Table 2. Top five preferred samples.

Ranking	Overall (N = 30)			Extensive Makeup Experience (N = 18)			Moderate Makeup Experience (N = 12)		
	Sample	M	S.D.	Sample	M	S.D.	Sample	M	S.D.
1		5.60	1.85		5.78	1.47		5.58	1.71
2		5.37	1.91		5.61	1.38		5.33	1.43
3		5.33	1.85		5.61	1.95		5.08	1.98
4		5.33	1.83		5.56	1.74		5.08	1.66
5		5.10	2.13		5.50	1.74		4.75	2.28

The 30 interviewees preferred cosmetic boxes that were high-quality, simple, and clean, with centrally positioned logos, and allowing for easy single-handed operations. Those with more extensive makeup experience leaned toward boxes with dual-layer processing (e.g., a transparent first layer, electroplating and gradient-colored spray for the second layer, metal brushing in the middle, and plastic injection molding for the outer frame) to showcase sophistication. Those with moderate makeup experience preferred darker tones, simpler styles, and smaller-sized boxes that are convenient to carry.

4.4. Impact of Interviewees' Involvement and Background on Cosmetic Box Preferences

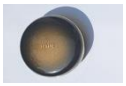
To explore the impact of involvement and background information on the respondents' preferences for cosmetic boxes, a one-way ANOVA was conducted. The independent variables were involvement level and background information. Preference ratings for cosmetic boxes were used as dependent variables. The homogeneity of variance test confirmed that the variances among groups were homogeneous ($p > 0.05$), and ANOVA tests

revealed significant differences among groups ($p < 0.05$). Post hoc multiple comparisons (Tukey's test) were conducted to identify groups with significant differences ($p < 0.05$). Due to the extensive nature of the analysis data, the following sections provide textual explanations of the results for each of the independent variables.

4.4.1. Makeup Experience (Table 3)

Respondents with 2–3 years of makeup experience (M = 4.33) significantly preferred Sample 5 over those with more than 4 years of experience (M = 1.82). Those with over 4 years of experience (M = 5.36) significantly liked Sample 61 compared to those with 1–2 years of experience (M = 1.80). Respondents with 3–4 years of experience (M = 1.27) significantly disliked Sample 11 compared to those with 1–2 years of experience (M = 3.00). Those with 1–2 years of experience (M = 1.40) and 3–4 years of experience (M = 1.82) significantly disliked Sample 12 compared to those with over 4 years of experience (M = 3.73).

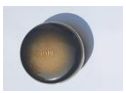
Table 3. Samples with significant differences in makeup experience on cosmetic box preferences.

No.	5	61	12	11
Sample				

4.4.2. Makeup Occasions (Table 4)

Those who applied everyday makeup (M = 5.71, 4.47, 5.00) significantly preferred Samples 13, 17, and 61 compared to those who applied makeup for special occasions or events (M = 4.15, 2.46, 2.85). Those who applied makeup for special occasions or events (M = 2.08) significantly disliked Sample 33 compared with those who applied everyday makeup (M = 3.41).

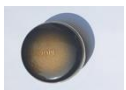
Table 4. Samples with significant differences in makeup occasions on cosmetic box preferences.

No.	13	17	33	61
Sample				

4.4.3. Weekly Makeup Frequency (Table 5)

Those who applied makeup 3 days per week (M = 6.33) significantly preferred Sample 17 compared to those who applied makeup 1 day (M = 1.75) or 2 days per week (M = 2.33). Those who applied makeup 4 days per week (M = 6.80) significantly liked Sample 61 compared to those who applied makeup 1 day per week (M = 1.75).

Table 5. Samples with significant differences in weekly makeup frequency on box preferences.

No.	17	61
Sample		

4.4.4. Number of Cosmetic Boxes Owned (Table 6)

Those with 6–10 cosmetic boxes (M = 5.00) significantly preferred Sample 27 over those with 5 or fewer boxes (M = 2.33). Similarly, those with 6–10 cosmetic boxes (M = 4.36) significantly preferred Sample 10 compared to those with 5 or fewer boxes (M = 2.44) and 16 or more boxes (M = 2.43). Additionally, those with 11–15 cosmetic boxes (M = 5.00)

significantly preferred Sample 44 over those with 5 or fewer boxes (M = 2.32). In contrast, those with 5 or fewer cosmetic boxes (M = 1.22) significantly preferred Sample 29 over those with 6–10 boxes (M = 3.36).

Table 6. Samples with significant differences in number of cosmetic boxes owned on cosmetic box preferences.

No.	27	10	44	29
Sample				

4.4.5. Annual Expenditure on Cosmetics (Table 7)

Individuals with an annual expenditure of TWD 10,000–20,000 (M = 5.75) significantly preferred Sample 19 compared to those with an expenditure of less than TWD 5000 (M = 2.61), 5000–10,000 (M = 2.60), and more than 20,000 (M = 2.00). Those with an expenditure of TWD 10,000–20,000 (M = 6.50) significantly preferred Sample 49 compared with those with an expenditure above TWD 20,000 (M = 2.33). Individuals with an expenditure of TWD 10,000–20,000 (M = 6.50) and above TWD 20,000 (M = 6.33) significantly preferred Sample 31 compared to those with an expenditure of TWD 5000–10,000 (M = 3.00). Those with an expenditure above TWD 20,000 (M = 4.67) significantly preferred Sample 2 over those with an expenditure of less than TWD 5000 (M = 1.94). Those with an expenditure above TWD 20,000 (M = 5.67; 5.67) significantly preferred Samples 25 and 76 compared to those with an expenditure of TWD 5000–10,000 (M = 1.80; 2.00).

Table 7. Samples with significant differences in annual expenditure on cosmetic box preferences.

No.	19	49	31	2	25	76
Sample						

4.4.6. Age

In terms of age, there was no significant difference in the preference for cosmetic boxes among women aged 20–30.

4.4.7. Residence (Table 8)

Interviewees in urban areas (M = 4.70, 5.40, 5.00, and 5.30) significantly preferred Samples 3, 23, 59, and 74 compared to those in suburban areas (M = 3.20, 3.70, 2.65, 3.15). Interviewees in urban areas (M = 2.70) significantly disliked Sample 22 compared to those in suburban areas (M = 3.90). Interviewees in suburban areas (M = 2.15) significantly disliked Sample 51 compared to those in urban areas (M = 3.40).

Table 8. Samples with significant differences in residence on cosmetic box preferences.

No.	3	23	59	74	22	51
Sample						

4.4.8. Monthly Income (Table 9)

Those with an income above TWD 30,000 (M = 5.67; 5.33; 5.67) significantly preferred Samples 2, 63, and 72 compared to those with an income below TWD 10,000 (M = 1.63; 2.13; 2.00), 10,000–20,000 (M = 2.00; 1.78; 2.00), and 20,000–30,000 (M = 2.40; 2.10; 1.90). Those

with an income above TWD 30,000 (M = 6.00) significantly preferred Sample 76 compared to those with an income below TWD 10,000 (M = 2.25).

Table 9. Samples with significant differences in monthly income on cosmetic box preferences.

No.	2	63	72	76
Sample				

4.4.9. Summary

The analysis results from Sections 4.4.1–4.4.3 collectively indicate that interviewees with more extensive makeup experience not only assess cosmetics visually but also prioritize tactile sensations and functionality. They prefer cosmetic boxes with texture, such as electroplating or double-layer processing. These features enhance both visual appeal (with eye-catching and metallic colors from electroplating) and provide a grippy and non-slip tactile sensation. They also favor cosmetic boxes that are easy to grip and use, and they tend to dislike oval-shaped matte designs (as seen in Sample 11 in Table 3) due to inadequate surface texture, slipperiness, and difficulty in gripping. Interviewees with moderate makeup experience continued to explore their makeup styles and, therefore, tend to evaluate cosmetic boxes primarily based on visual aspects, preferring cosmetic boxes with a multicolored palette visible from the exterior.

Based on the analysis results from Section 4.4.4, it can be observed that individuals who collect a larger number of cosmetic boxes (6–10, 11–15) tend to prefer those with a visual appeal of transparency and metallic colors from hot stamping. Additionally, they prefer boxes that are lightweight but have a substantial feel (Sample 44 in Table 6 has a small size but is made of acrylic material with higher density compared to other plastics) and feature special processing. On the other hand, those with fewer boxes prefer simple and clean visual designs.

Based on the analysis results from Section 4.4.5, individuals with an annual expenditure of TWD 10,000–20,000 prefer cosmetic boxes with a luxurious appearance (printed white logos and black boxes), whereas those with an expenditure above TWD 20,000 prioritize the functionality of the powder and diverse designs of cosmetic boxes.

Based on the analysis results from Section 4.4.7, it is evident that interviewees living in urban areas tend to prefer cosmetic boxes with a visually appealing electroplated metallic finish or injection-molded glossy plastic finish. In terms of tactile sensations and functionality, they favor cosmetic boxes of moderate size that are not slippery. On the other hand, interviewees from suburban areas prefer smaller, simpler, and more portable cosmetic boxes in both visual appearance and functionality.

Based on the analysis results from Section 4.4.8, it is evident that individuals with a higher monthly income also allocate a higher budget to cosmetic boxes and tend to prefer a wider range of box types. Conversely, those with a lower monthly income, who spend less on cosmetics, emphasize functionality in their choices.

5. Discussion

This study targeted young women aged 20–30, using physical cosmetic boxes as experimental samples and employed the Miryoku Engineering approach to evaluate attractiveness. The investigation focused on the visual and tactile sensory aspects of their preferences for cosmetic boxes. Seven attractiveness evaluations were identified: easy portability and use, fresh and simple style, elegance and exquisite, avant-garde design, clean appearance, lively and youthful design, and cost-effectiveness. Four attractiveness styles were identified: fashionable boutique style, literary and minimalist style, economically affordable style, and unique style. In all, 35 specific conditions were identified. These

findings underscore the importance of considering both visual and tactile elements in cosmetic packaging design.

5.1. Constructing the Attractiveness Factors of Cosmetic Boxes in Visual and Tactile Aspects through EGM

EGM is a method for refining preference attractiveness by comparing physical cosmetic samples and emphasizing visual and tactile perspectives to translate consumers' inner thoughts into design elements.

According to ELLE's survey results, over 70% of consumers obtain cosmetic information online and make purchases online [47]. However, during the interviews conducted in this study, it was observed that online shoppers often visited counters or physical stores to confirm the products, underscoring the importance of both the visual and tactile aspects in consumer preferences.

Visual Aspect: Analysis from Sections 4.2 and 4.3 revealed that interviewees preferred dark-colored boxes (such as black or bronze), with surface treatments emphasizing glare, refraction, or brightness effects (plastic injection gloss, electroplating, external spray UV, and double-layer design with an outer layer made of transparent acrylic). Simple text logos stamped in gold at the center of the cosmetic box, avoiding unnecessary graphics or three-dimensional decorations, maintaining a unified color scheme, or adding silver edges, create a simple, textured, delicate, and high-end feel. Therefore, within the EGM diagram in Section 3.4, "clean appearance", "fresh and simple", "avant-garde", "lively and youthful", and "elegant and exquisite" are the primary factors in the visual design of cosmetic boxes that attract consumers, providing them with a sense of fashionable boutique style and literary and minimalist style.

Tactile Aspect: The EGM survey results from Sections 3.4 and 3.5 revealed the preferred specific conditions regarding size, tactile sensation, and functionality among respondents. Additionally, the clustering results from Section 4.2 on cosmetic box preference and the comparison results from Section 4.3 among respondents with different makeup experiences indicated that interviewees preferred compact cosmetic boxes with a diameter less than 57 mm and a thickness less than 15 mm. These dimensions enable single-handed grip and easy carrying for touch-ups on the go. These dimensions are suitable for the smaller hand sizes of Asian women (Taiwan), but may not be applicable to women from other regions. They also expect functional designs, such as mirrors, brushes, and puffs, in the cosmetic box. All these features enhance the usability and sensory perception of substantiality. The EGM survey results from Sections 3.4 and 3.5 also show a preference for compact sizes that convey a sense of volume, such as boxes made of acrylic materials or electroplating surface treatments, which can enhance texture and weight, providing consumers with a noble feel and higher-cost performance. During the EGM interviews in Section 3.3, it was noted that in terms of surface treatments, matte spray paint, or metal brushing provides consumers with fine textures and a smooth touch. Electroplating or UV spraying adds a transparent layer to the surface of a cosmetic box, thereby increasing its thickness and surface elasticity. The increased friction on the surface makes it easier to open the box, providing a tactile experience that is both textured and refined.

Therefore, "clean appearance", "fresh and simple", "avant-garde", "easy portability and use", and "cost-effectiveness" are the key factors that consumers are more concerned about in terms of tactile attractiveness, as confirmed in the EGM diagram in Section 3.4, embodying a sense of fashionable boutique style, unique style, and economically affordable style.

Furthermore, some respondents expressed in the EGM interviews of Section 3.3 their desire for reusable cosmetic packaging. This entails the ability to purchase powder refills or freely mix powder colors, as exemplified by brands like M.A.C, Exomera, BOBBI BROWN, and IOPE, which utilize clip or magnetic designs for powder replacement (Figure 2). This approach enables consumers to replenish and reuse the boxes after the initial product is consumed, thereby reducing waste and preventing consumers from purchasing multiple

cosmetics solely to match a specific shade of powder. The design of refillable cosmetic cases can reduce packaging waste and meet the goal of sustainable use.



Figure 2. Sample specimens of interchangeable makeup powder refills.

Some participants also expressed a preference for products made from eco-friendly materials, although they admitted their inability to identify these materials independently, relying instead on online sales information or sales personnel's descriptions. The European Union currently mandates that imported products use Post-Consumer Recycled (PCR) materials, which are the primary materials for European cosmetic brand boxes. Another material, Poly Lactic Acid (PLA), is a plastic made from plant fibers (such as coffee grounds, rice husks, sugarcane, corn starch, etc.) that can be biodegraded. PLA is actively promoted as an eco-friendly material and is characterized by irregular plant fiber textures and a slightly rough tactile feel, making each product visually unique.

In the past, products made from recycled materials were often perceived negatively as being of inferior quality, poorly made, or simply as cost-saving measures. However, with the increasing awareness of environmental issues, PCR and PLA materials are gaining popularity among young people. Despite higher manufacturing costs and more complex production processes, these materials are more eco-friendly. The adoption of such materials in product design can bring positive benefits. This study encourages future cosmetic companies and designers to adopt eco-friendly materials and refillable powder designs in manufacturing cosmetic boxes. This not only enhances brand image and consumer acceptance but also promotes environmental friendliness and protection, effectively reducing the generation of non-degradable waste, achieving the United Nations Sustainable Development Goal 12.5.

5.2. Impact of Makeup Experience on Cosmetic Box Preferences

Cluster analysis from Sections 4.2 and 4.3, one-way ANOVA from Section 4.4, and EGM interview results from Sections 3.4 and 3.5 showed that makeup experience influences consumers' evaluations and attractiveness factors of cosmetic boxes from visual and tactile perspectives. From Sections 4.3 and 4.4.1, Sections 4.4.2–4.4.4, it is evident that those with more makeup experience and a higher number of cosmetic boxes prefer cosmetic boxes with surface treatments, such as electroplating, UV spraying, double layers, or special processing. They prefer moderately sized boxes (such as a diameter below 57 mm and a thickness below 15 mm) that are easy to hold and carry, providing a high-quality feel in terms of vision and touch and satisfying their desire for collection. By contrast, individuals with moderate makeup experience tend to prefer darker colors (such as black, dark blue) and simple, clean, and compact designs, emphasizing visual simplicity and functional portability. From Section 4.4.6, it can be inferred that the preferences of respondents residing in urban areas and those with rich makeup experience were aligned, while those in suburban areas and individuals with moderate makeup experience exhibited similar trends.

To further understand the differences between consumers residing in urban areas and those in suburban areas, this study interviewed cosmetic counter-salespersons. Consumers in urban areas were exposed to makeup early, accumulating considerable experience. They now enjoy the high-quality visual and tactile sensations associated with cosmetic

boxes. Contrariwise, consumers in suburban areas tend to start applying makeup at a later stage and are still exploring the use of affordable cosmetics, and they prioritize simplicity in appearance and convenience in functionality. In conclusion, as makeup experience increases, consumers' preferences for cosmetic boxes gradually shift toward high-quality visual and tactile designs.

6. Conclusions

As most consumers obtain cosmetic information and make purchases online [47], they often return products when they find that the received items do not meet their expectations. The high costs associated with recovering and restocking returned products usually lead merchants to destroy these items, resulting in significant waste. Therefore, this study utilized physical cosmetic boxes as experimental samples and employed the Miryoku Engineering approach to investigate the attractiveness factors of cosmetic boxes that appeal to young women from visual and tactile sensory perspectives, ensuring the sustainability vision in product design, production, and environmental protection. The findings of this research will provide valuable references for cosmetic designers and are expected to address the aforementioned issues. The following conclusions were drawn.

1. Tactile evaluations supplement visual judgments by providing insights into usability and tactile sensations, which are challenging to assess using visual perception alone.
2. Young women prefer cosmetic boxes with styles encompassing fashionable boutique, literary and minimalist, economically affordable, and unique styles.
3. The original attractiveness evaluations of cosmetic boxes among young women include criteria such as easy portability and use, fresh and simple style, elegance and exquisite, avant-garde design, clean appearance, lively and youthful design, and cost-effectiveness.
4. Individuals with extensive makeup experience tend to evaluate cosmetic boxes through both visual and tactile senses, expressing a preference for boxes with a sophisticated visual and tactile appeal.
5. Those with moderate makeup experience primarily evaluated cosmetic boxes based on visual perception and functionality, favoring smaller, darker, and inconspicuous box designs.
6. With the rise of environmental awareness, young consumers are increasingly inclined to accept cosmetic boxes with replaceable powder cores, reusable designs, or those made from eco-friendly materials such as PCR and PLA. Therefore, it is recommended that future cosmetic box designs should focus on sustainability and reusability to enhance brand image and achieve the United Nations Sustainable Development Goal 12.5—Responsible Consumption and Production.

This study highlights the significant impact of visual, tactile, and functional experiences on users' preferences for cosmetic boxes. In terms of tactile and functional aspects, participants favored cosmetic boxes with the following features: operable with one hand (diameter less than 57 mm, thickness less than 15 mm), magnetic closures, acrylic material, and surface treatments such as electroplating or matte spray painting. These findings can serve as references for future cosmetic designers, allowing them to select specific conditions that appeal to different types of consumers while potentially keeping costs manageable (either increasing or significantly reducing them). This approach aims to meet young consumers' expectations regarding the tactile and functional aspects of cosmetic products, increase product sales, reduce inventory and return rates, and fulfill the needs of efficient production and environmental sustainability.

However, due to cost and time constraints, this research only investigated the attractiveness factors of cosmetic boxes among young women in Taiwan. Future studies can build on these results to design cosmetics that align with consumer preferences, thereby effectively reducing return rates. Additionally, the interviews in this study primarily focused on Taiwanese women aged 20–30. Future research should broaden the sample sources to include respondents of different age groups and from various countries, or use samples

with sustainability design, to further investigate the factors influencing the preferences of young women for the appearance, texture, and sustainability design of cosmetic boxes.

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References

1. The Online Shopping Market Is Soaring to New Heights, with Growth Rates Surpassing Those of the Overall Retail Industry. Available online: https://www.moea.gov.tw/Mns/dos/bulletin/Bulletin.aspx?kind=9&html=1&menu_id=18808&bull_id=9673 (accessed on 12 May 2024).
2. "I Didn't Mean to Mess Up!"—Customer Service Is Exhausted from Responding to These 10 Reasons for Online Shopping Returns. Available online: https://www.gvm.com.tw/article/76564 (accessed on 12 May 2024).
3. While the COVID-19 Pandemic Has Propelled the Boom in Online Shopping, the Surge in Returns Poses an Unexploded Bomb for the Retail and Logistics Industries in the United States. Available online: https://ec.ltn.com.tw/article/breakingnews/3392951 (accessed on 12 May 2024).
4. "Key Wastage Data" That the Online Shopping Generation Must Know. Available online: https://blog.chef-clean.com/blog/key-data/ (accessed on 12 May 2024).
5. Returned Items Result in 5.8 Billion Tons of Waste Annually! With Reverse Logistics Facing Major Hurdles, How Can Businesses Respond? Available online: https://fc.bnext.com.tw/articles/view/2349 (accessed on 12 May 2024).
6. Stadtlander, L.; Murdoch, L. Frequency of occurrence and rankings for touch-related adjectives. *Behav. Res. Methods Instrum. Comput.* **2000**, *32*, 579–587. [CrossRef] [PubMed]
7. Kornienko, M.; Kukhta, M.; Fofanov, O.; Kukhta, E. Experience of Visual Perception in the Design Education. *Procedia-Soc. Behav. Sci.* **2015**, *206*, 365–368. [CrossRef]
8. Schifferstein, H.N.J. The perceived importance of sensory modalities in product usage: A study of self-reports. *Acta Psychol.* **2006**, *121*, 41–64. [CrossRef] [PubMed]
9. Ho, C.-H.; Chen, N.-F. A User Experience Case Study on the Sensory Importance at the Early Stage of Using Juice Squeezer. *J. Kansei* **2013**, *1*, 46–63.
10. Fenko, A.; Otten, J.J.; Schifferstein, H.N.I. Describing product experience in different languages: The role sensory modalities. *J. Pragmat.* **2010**, *42*, 3314–3327. [CrossRef]
11. Gover, P.C.; Schoormans, J.P. Product personality and its influence on consumer preference. *J. Pragmat.* **2005**, *22*, 189–197. [CrossRef]
12. Momo Fubon Media Boosts Large Appliance Sales in 'She-Conomy'. Available online: https://www.moneydj.com/kmdj/news/newsviewer.aspx?a=1ebfb715-761f-4f4b-913e-e010d2570923 (accessed on 12 May 2024).
13. Lin, S.-Y.; Yen, J.; Fang, K. The influence of packaging-design benefits on brand equity. *Bull. Jpn. Soc. Sci. Des.* **2012**, *58*, 11–20. [CrossRef]
14. A Lethal Lip Color Exuding Sensual Charm: Giorgio Armani Rouge d'Armani Matte Lipstick. Available online: https://thefemin.com/2019/01/giorgio-armani-rouge-darmani-matte-lipstick/ (accessed on 12 May 2024).

15. IMARC Group. *Cosmetics Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023–2028*; IMARC Group: Taipei, Taiwan, 2023. Available online: https://www.gii.tw/report/imarc1390622-cosmetics-market-global-industry-trends-share-size.html (accessed on 12 May 2024).
16. Pino, G.; Guido, G.; Tomacelli, C.; Capestro, M. Assessing the Role of Haptic Imagery in Print Advertising: An Empirical Investigation. In *Rediscovering the Essentiality of Marketing, Proceedings of the 2015 Academy of Marketing Science (AMS) World Marketing Congress, Bari, Italy, 14–18 July 2015*; Springer: Berlin/Heidelberg, Germany, 2016.
17. Kumar, M.; Townsend, J.D.; Vorhies, D.W. Enhancing consumers' affection for a brand using product design. *J. Prod. Innov. Manag.* **2015**, *32*, 716–730. [CrossRef]
18. Gidlöf, K.; Anikin, A.; Lingonblad, M.; Wallin, A. Looking is buying. How visual attention and choice are affected by consumer preference and properties of the supermarket shelf. *Appetite* **2017**, *116*, 29–38. [CrossRef]
19. Schifferstein, H.N.J.; Cleiren, M.P.H.D. Capturing product experiences: A split-modality approach. *Acta Psychol.* **2005**, *118*, 293–318. [CrossRef]
20. Bremner, A.J.; Spence, C. The Development of Tactile Perception. *Adv. Child Dev. Behav.* **2017**, *52*, 227–268. [CrossRef]
21. Peck, J.; Childers, T.L. If I touch it I have to have it: Individual and environmental influences on impulse purchasing. *J. Bus. Res.* **2006**, *59*, 765–769. [CrossRef]
22. Choi, K.; Jun, C. A systematic approach to the Kansei factors of tactile sense regarding the surface roughness. *Appl. Ergon.* **2007**, *38*, 53–63. [CrossRef]
23. Spence, C.; Gallace, A. Multisensory design: Reaching out to touch the consumer. *Psychol. Mark.* **2011**, *28*, 267–308. [CrossRef]
24. Balaji, M.S.; Raghavan, S.; Jha, S. Role of tactile and visual inputs in product evaluation: A multisensory perspective. *Asia Pac. J. Mark. Logist.* **2011**, *23*, 513–530. [CrossRef]
25. Chuang, M.-C.; Chen, Y.-T.; Chang, Y.-J. A Study on Tactile Image of Products—Using Handleless Cups as a Case Study. *J. Kansei* **2013**, *1*, 28–45.
26. Rahman, O. The Influence of Visual and Tactile Inputs on Denim Jeans Evaluation. *Int. J. Des.* **2012**, *6*, 11–25.
27. Karana, E.; Hekkert, P. User-Material-Product Interrelationships in Attributing Meanings. *Int. J. Des.* **2010**, *4*, 43–52.
28. Kumagai, T.; Nonomura, Y. Enhancement of Handshake Attraction through Tactile, Visual, and Auditory Multimodal Stimulation. *Technologies* **2023**, *11*, 86. [CrossRef]
29. Wang, I.-C.; Chen, S.-N.; Chang, Y.-M. The research of correlation between cosmetic compact opening cognition and its dimensions. In Proceedings of the WCAHSS 2009: World Congress on Arts, Humanities and Social Sciences, Paris, France, 24–26 June 2009.
30. Wang, C.-H. Integrating Kansei engineering with conjoint analysis to fulfil market segmentation and product customisation for digital cameras. *Int. J. Prod. Res.* **2015**, *53*, 2427–2438. [CrossRef]
31. Lin, R.-T.; Chen, H.-C.; Wang, T.-H.; Tseng, M.-L.; Su, C.-H.; Chang, S.-H. Qualitative Experience in the Creative Lifestyle Industry. In Proceedings of the Taiwan Institute of Kansei, Taichung, Taiwan, 23 October 2010.
32. Zhang, B.-Y. Preference-based Design: Charm Engineering and Its Application in Product Design. *Decoration* **2017**, *11*, 134–135.
33. Ittermann, T.; Thamm, M.; Schipf, S.; John, U.; Rettig, R.; Völzke, H. Relationship of smoking and/or passive exposure to tobacco smoke on the association between serum t and body mass index in large groups of adolescents and children. *Thyroid* **2013**, *23*, 262–268. [CrossRef] [PubMed]
34. Ujigawa, M. Miryoku Engineering. *J. Jpn. Soc. Fuzzy Theory Syst.* **1999**, *11*, 58.
35. Nagamachi, M. Perspectives and the New Trend of Kansei/Affective Engineering. *TQM J.* **2008**, *20*, 290–298. [CrossRef]
36. Sanui, J. Visualization of users' requirements: Introduction of the Evaluation Grid Method. In Proceedings of the 3rd Design & Decision Support Systems in Architecture & Urban Planning Conference, Spa, Belgium, 18–21 August 1996.
37. Ma, M.-Y. Dive into the Consumers' World: The Introduction of New Product Development in Japan. *Materialsnet* **2010**, *280*, 160–172.
38. Ma, M.Y.; Chen, Y.C.; Li, S.R. How to Build Design Strategy for Attractiveness of New Products. *Adv. Inf. Sci. Serv. Sci.* **2011**, *3*, 1–10. [CrossRef]
39. Wei, C.-C.; Ma, M.-Y. Designing Attractive Children's Picture Books: Evaluating the Attractiveness Factors of Various Picture Book Formats. *Des. J.* **2020**, *23*, 287–308. [CrossRef]
40. Zhang, Y.; Liu, S.-F.; Wang, K. Explorations of Charm Factors and Development of Fishing in Southern Taiwan Based on Miryoku Engineering and the Analytic Network Process (ANP). *Sustainability* **2019**, *11*, 737. [CrossRef]
41. Kang, X. Combining Grey Relationship Analysis and Neural Network to Develop Attractive Automobile Booth Design. *Comput. Intell. Neurosci.* **2020**, *2020*, 8863727. [CrossRef]
42. Liu, S.; Zhang, Y.; Lai, Y.; Wang, M. A novel method of design elements based on EGM and fuzzy QFD. *Int. J. Prod. Dev.* **2018**, *22*, 408–420. [CrossRef]
43. Stay-at-Home Economy: Online Shopping is Booming. Available online: https://www.gvm.com.tw/article/48027 (accessed on 4 June 2024).
44. Understanding the Media Influence on Women's Shopping Decisions at a Glance. Available online: https://www.gosurvey.com.tw/uploads/insight/tw/insight_20180901.pdf (accessed on 4 June 2024).
45. After Singles' Day, When Will the Next Wave of Beauty Product Purchases Occur? Available online: https://www.thenewslens.com/article/145354 (accessed on 4 June 2024).

46. Women's Online Shopping Spending is 2.5 Times that of Men's. Available online: https://reurl.cc/ZeEoqA (accessed on 4 June 2024).
47. 2023 ELLE BEAUTY STAR Beauty Purchase Behavior Grand Survey Revealed! Available online: https://www.elle.com/tw/beauty/news/a44412347/2023-elle-beauty-star-surveyresults/ (accessed on 12 May 2024).

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