Consumer perception of “Green” and Sustainable Development Goals (the case of fashion product design and charm attributes)

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Abstract. This study aims to explore the impact of consumers’ perception of green and sustainable development goals (SDGs) image in fashion brands on their value perception and the attractiveness of product design. Fashion brands do not only strive for fashion, innovation, avant-garde, comfort, quality, and reasonable prices, but also placing increasing emphasis on sustainability, environmental friendliness, and social responsibility. As SDGs have become a shared vision and value perception among consumers, clothing with SDGs attributes is becoming fundamental for blue ocean strategies and competitive differentiation. Using the example of fashion brand SDGs image design, this study applies the "two-way questionnaire" method of the Kano quality model to investigate the correlation between quality evaluation of product cultural and ecological attributes and consumer satisfaction. Through the two-dimensional quality of the Kano model, consumers’ attitudes towards clothing with SDGs attributes are clarified more accurately. This study provides specific improvement plans to enhance the quality of green and sustainable fashion with SDGs attributes and emphasizes the incorporation of SDGs into the decision-making of fashion brands, which will have a significant impact on brand image.

1 Introduction

Fashion brands have a significant influence on shaping consumer values, lifestyles, and consumption behaviors. However, the fashion industry has often been criticized as a major contributor to environmental and social sustainability issues in the past. With the rise of sustainable development concepts, fashion brands have started to pay attention to the Sustainable Development Goals (SDGs) and incorporate them into their business strategies and values to achieve sustainability goals through measures such as improving supply chain transparency, reducing environmental impact, and enhancing labor conditions.

However, there is still a gap in consumers' perception of the SDGs image of fashion brands and sustainable consumption. Some consumers are not familiar with or do not care

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about the concept and goals of SDGs, and they may hold a skeptical attitude towards fashion brands' efforts. Additionally, consumers tend to prioritize fashionability, quality, and price when making purchases, while placing lower emphasis on sustainability.

Therefore, it is crucial to study the impact of fashion brand SDGs image on consumers' value perception. Understanding the level of consumer identification with sustainable efforts and their impact on consumer behavior and values will help fashion brands drive sustainable development and meet consumer expectations. In recent years, there has been a growing global focus on sustainable development, and governments, organizations, and individuals have become increasingly aware of the urgent need to address environmental and social challenges to create a more sustainable future.

2 Literature Review

2.1 Fashion brands

Fashion brands refer to companies or brands known for their creativity, innovation, and capabilities, playing a significant role in the design, manufacturing, and selling of fashion products. These brands possess unique styles and identities, leading trends and creating fashion movements. They win the favor of consumers based on brand image, quality, and associations with celebrities or fashion idols. Successful fashion brands satisfy consumers' pursuit of self-expression, status, and belonging through establishing a unique brand positioning, as well as elements such as brand names, trademarks, packaging, store design, and advertising campaigns. The presence and influence of fashion brands in contemporary society are undeniable, as they shape consumers' taste and values.

2.2 Kano Model

To improve the shortcomings of linear hypothesis, Kano (1984) proposed the Kano model with the “psychological quality” as the central concept, emphasizing the “two-dimensional” perspective to interpret the correlation between product quality and satisfaction. The linear (one-dimensional) model means that for a certain quality element, satisfaction will increase or decrease in proportion to the adequacy of quality. However, in fact, this rule does not apply to all quality factors. Two-dimensional quality challenges this view. It is believed that satisfaction may not necessarily occur when all quality factors are in place. Sometime dissatisfaction may occur or satisfaction may not necessarily be related to quality.

Fig. 1. Empowerment Model
A simple way of identifying different Kano categories, one-dimensional, attractive and must-be qualities, is to use a Kano questionnaire (Kano et al., 1984). In this questionnaire, customers indicate if they feel satisfied or dissatisfied with a given situation. First, a situation supposes the quality (criterion) is present or sufficient [1-11]. A second situation assumes the quality is absent or insufficient. Again, the customer must choose one of the above-mentioned feeling responses. By combining the two answers in the Kano evaluation table (Table 1), the product criterion can be identified as attractive, must-be, one-dimensional, indifference or reversal.

Table 1. Kano evaluation table

<table>
<thead>
<tr>
<th>Product Criteria/attributes</th>
<th>Insufficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Satisfied</td>
</tr>
<tr>
<td>Satisfied</td>
<td>Q</td>
</tr>
<tr>
<td>It should be that way</td>
<td>R</td>
</tr>
<tr>
<td>I am indifferent</td>
<td>R</td>
</tr>
<tr>
<td>I can live with it</td>
<td>R</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>R</td>
</tr>
</tbody>
</table>

(A-attractive, O-one-dimensional, M-must-be, I-indifference, R-reversal, Q-questionable)

3 Research Methods

This study engaged five expert scholars based on the selection of 27 representative samples of fashion brand SDGs product design attractiveness attributes by Chang et al. (2023). Using an open-ended approach, each expert scholar was invited to provide their viewpoint on the evaluation items for fashion brand SDGs product design attractiveness. The opinions of the expert scholars were collected, and the preliminary findings were summarized. Relevant research findings (e.g., He et al., 1996; Fu, 2007; Chen & Li, 2007) were referenced. Subsequently, experts conducted further discussions through focus groups to define and explain the fashion brand SDGs product design attractiveness attributes they possessed.
4 Findings

Table 2. Classification of Fashion Brand SDGs Product Design Attractiveness Attributes using the Kano Model

<table>
<thead>
<tr>
<th>Must-Be</th>
<th>One dimensional</th>
<th>Indifferent quality</th>
<th>Attractiveness</th>
<th>Contradictory</th>
<th>Reversal</th>
<th>CS</th>
<th>DS</th>
<th>Kano Model Quality classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Innovation</td>
<td>0</td>
<td>0</td>
<td>45.5</td>
<td>15.2</td>
<td>6.3</td>
<td>33</td>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>2. Avant-garde</td>
<td>6.3</td>
<td>0.9</td>
<td>52.7</td>
<td>11.6</td>
<td>7.1</td>
<td>21.4</td>
<td>0.18</td>
<td>-0.1</td>
</tr>
<tr>
<td>3. Innovative</td>
<td>1.8</td>
<td>0</td>
<td>32.1</td>
<td>11.6</td>
<td>6.3</td>
<td>46.2</td>
<td>0.25</td>
<td>-0.04</td>
</tr>
<tr>
<td>4. Unique</td>
<td>0</td>
<td>0</td>
<td>30.4</td>
<td>13.4</td>
<td>8.9</td>
<td>47.3</td>
<td>0.31</td>
<td>0</td>
</tr>
<tr>
<td>5. Uniqueness</td>
<td>3.6</td>
<td>1.6</td>
<td>35.7</td>
<td>14.3</td>
<td>10.7</td>
<td>33.9</td>
<td>0.29</td>
<td>-0.1</td>
</tr>
<tr>
<td>6. High-end</td>
<td>4.5</td>
<td>1.6</td>
<td>51.8</td>
<td>14.3</td>
<td>8</td>
<td>19.0</td>
<td>0.22</td>
<td>-0.09</td>
</tr>
<tr>
<td>7. Reliability</td>
<td>0</td>
<td>0</td>
<td>33.9</td>
<td>9.8</td>
<td>8</td>
<td>40.0</td>
<td>0.22</td>
<td>0</td>
</tr>
<tr>
<td>8. Consumer friendliness</td>
<td>0</td>
<td>0</td>
<td>21.4</td>
<td>9.8</td>
<td>9.8</td>
<td>58.9</td>
<td>0.31</td>
<td>0</td>
</tr>
<tr>
<td>9. SDGs before brand</td>
<td>0</td>
<td>1.8</td>
<td>27.7</td>
<td>56.3</td>
<td>8</td>
<td>6.3</td>
<td>0.68</td>
<td>-0.02</td>
</tr>
<tr>
<td>10. Famous brand</td>
<td>5.4</td>
<td>0.9</td>
<td>34.6</td>
<td>43.6</td>
<td>8</td>
<td>7.1</td>
<td>0.53</td>
<td>0.07</td>
</tr>
<tr>
<td>11. Projects in line with SDGs</td>
<td>4.5</td>
<td>3.6</td>
<td>40.2</td>
<td>42.0</td>
<td>7.1</td>
<td>1.8</td>
<td>0.51</td>
<td>-0.09</td>
</tr>
<tr>
<td>12. Label related instructions</td>
<td>2.7</td>
<td>5.4</td>
<td>32.1</td>
<td>51.8</td>
<td>6.3</td>
<td>19</td>
<td>0.62</td>
<td>-0.09</td>
</tr>
</tbody>
</table>

The fashion brand SDGs product design attractiveness attributes were classified based on the principle of relative majority for each type of quality. The product attributes with the highest occurrence rates were selected, resulting in a total of 12 product attributes for analysis: 4 attributes of "indifferent," 4 attributes of "reverse," and 4 attributes of "attractive" quality (Table 1). The survey was conducted among postgraduate students with backgrounds in art, design, and cultural creativity, and a total of 112 valid questionnaires were collected.

The research findings reveal that among the 12 quality elements of Fashion Brand SDGs Product Design attractiveness, four attributes - "diversity," "avant-garde," "exquisiteness," and "high-end" - are classified as "indifferent," indicating that consumers do not have any particular expectations or desires for them. Four attributes - "innovation," "uniqueness," "reliability," and "consumer-friendliness" - are classified as "reverse," suggesting that lacking these qualities would not significantly decrease consumer satisfaction. Four attributes - "SDGs fashion brand," "well-known brand," "alignment with SDGs goals," and "relevant labeling" - are classified as "attractive" and considered as the focus of future Fashion Brand SDGs Product Design quality. These attributes can serve as niche points for product differentiation and as references for product design strategies and promotion.
Attributes such as diversity, avant-garde, exquisiteness, and high-end exhibit a positive relationship with customer expectations and satisfaction, while a lack of avant-garde and exquisiteness may lead to dissatisfaction. The impact of innovation, uniqueness, reliability, and consumer-friendliness is relatively weaker, but issues in these areas can still result in dissatisfaction.

Regarding attributes related to SDGs fashion brand, well-known brand, alignment with SDGs goals, and relevant labeling, customer expectations and satisfaction show a significantly strong positive relationship, with the greatest contribution to SDGs fashion brands. Customers highly appreciate the brand's efforts and commitment to SDGs, as it enhances brand value perception and overall satisfaction. The success of a fashion brand relies on meeting customer expectations for diversity, avant-garde, exquisiteness, high-end quality, as well as SDGs alignment, while maintaining a high level of innovation, uniqueness, reliability, and consumer-friendliness.

Figure 2 presents the decision matrix to determine the CS-DS values and illustrate the Kano quality distribution diagram for SDGs fashion brand product design. Based on the analysis of CS-DS evaluations, the significant attractive factors for SDGs fashion brand product design are summarized. In this study, the "elimination of dissatisfaction coefficient" is plotted on the horizontal axis, and the "enhancement of satisfaction coefficient" is plotted on the vertical axis.

The two coefficients are divided into degrees of magnitude using an average of 0.5. As a result, the 12 items of SDGs fashion brand product design fall into two regions for interpretation and decision-making, as shown in Figure 2 and Figure 3.

Attributes such as diversity, avant-garde, innovation, uniqueness, exquisiteness, high-end quality, reliability, and consumer-friendliness have a limited impact on the increase in satisfaction (CS). Although these attributes can enhance customer satisfaction to some extent, their contributions are relatively small. However, if these attributes are lacking or fail to meet customer expectations, they may cause a certain level of dissatisfaction (DS).

In contrast, attributes such as SDGs fashion brand, well-known brand, alignment with SDGs goals, and relevant labeling have a more significant positive impact on satisfaction (CS). These attributes are considered attractive features that can greatly enhance customer satisfaction. Particularly, the SDGs fashion brand attribute contributes the most to the increase in satisfaction.

Overall, fashion brands should prioritize the establishment of an SDGs image and emphasize alignment with SDGs goals, the status of being a well-known brand, and relevant labeling. These attributes are crucial in enhancing customer value perception and satisfaction. However, brands should still pay attention to maintaining and improving other attributes to ensure overall customer satisfaction with the brand.
There is a positive relationship between customer expectations and satisfaction regarding the qualities of diversity, avant-garde, refinement, and high-end. This means that when fashion brands excel in these qualities, customers are more satisfied and their satisfaction increases. However, for avant-garde and refinement, the lack of these qualities may lead to a certain degree of dissatisfaction. On the other hand, qualities such as innovation, uniqueness, reliability, and consumer-friendliness show a positive but relatively weaker relationship with customer satisfaction.

This indicates that these qualities contribute less to customer satisfaction and do not have a significant impact on overall satisfaction. However, if issues arise or if these qualities fail to meet customer expectations, a certain degree of dissatisfaction may occur. In contrast, there is a strong positive relationship between customer expectations and satisfaction for qualities such as SDGs fashion brand, renowned brand, compliance with SDGs goals, and relevant labeling.

These qualities are considered attractive features that significantly enhance customer satisfaction. Particularly for SDGs fashion brands, this quality contributes the most to customer satisfaction. Customers highly appreciate the efforts and commitments of fashion brands in the SDGs aspect, and the establishment of such an image enhances customers' perception of brand value and overall satisfaction. These qualities are crucial for the success of fashion brands. Brands should strive to meet customer expectations in terms of diversity, avant-garde, refinement, and high-end, while maintaining a high level of innovation, uniqueness, reliability, and consumer-friendliness.

Future researchers can expand their study on the consumer value perception of fashion brand SDGs image from the following perspectives:
1) Further explore the cultural and regional differences in consumer perception and values regarding SDGs to provide an in-depth understanding through cross-cultural comparisons;
2) Investigate the specific strategies and measures implemented by fashion brands in practicing SDGs, such as supply chain management, resource utilization, and social contributions, and study their impact on consumer perception and behavior;
3) Examine the acceptance and responses of different consumer groups towards SDGs fashion brands, including consumers with different ages, genders, incomes, and values;  
4) Utilize a combination of quantitative and qualitative methods to comprehensively analyze consumer perception and evaluation of fashion brand SDGs image, further validating and enriching the research findings. These studies will contribute to a deeper understanding of the fashion brand SDGs image and provide practical guidance to promote sustainable development and enhance consumer value.

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