

Research and Reflections on Plant Aesthetics in Interior Spaces

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Abstract:

Plant aesthetics combines traditional aesthetics with plant science, conveying information such as natural forms, ecological functions, and cultural symbols in the spatial environment, and is overall guided by diversified aesthetic values. Through research and reflection on the basic theories, spatial applications, and spatial effects of plant aesthetics, five design strategies are proposed: a dual orientation of ecology and art; embedding regional plants in indoor spaces to enhance local culture; emphasizing the visual focal point of plants; space design centered on the aesthetic functions of plants; and mobilizing the mood of the space through the color aesthetics of plants. These strategies provide theoretical and practical references for the application of plants and aesthetic research in indoor spaces.

Keywords:

Plant Aesthetics, Indoor Spatial Design, Aesthetic Value, Esthetic Application

1. Theoretical Basis of Plant Aesthetics

1.1. Views on plant aesthetics

Regarding the views on plant aesthetics, in the philosophical system of *Kant's Critique of Judgment*, the concept of “purposiveness without a purpose” is mentioned [1]. Although the aesthetic form of plants serves no clear practical purpose, it can arouse people’s aesthetic pleasure and preserve the pure beauty of plants, namely the directness and uniqueness of plant aesthetics. Christoph Dresser's theory of plant aesthetics states that plant aesthetics is actually a combination and development of the classical aesthetic tradition and plant science, following geometric, rational, and eternal laws [2]. *Ji Cheng* proposed the concept of “Although crafted by man, it seems to be created by nature” in *The Craft of Gardens*, which is a good interpretation of the ecological aesthetics of plants in space [3]. In terms of concept, plant aesthetics refers to the aesthetic attributes of various plants that have beautiful forms and offer people aesthetic enjoyment. The forms of a plant's flowers, leaves, roots, stems, etc., exhibit the characteristics of plant aesthetics.

Specifically, it requires designers to observe nature based on plant biology, interpret the value of plants, and understand the ecological beauty, dynamic beauty, color

beauty, and beauty of artistic conception in plant aesthetics. By conveying natural and poetic images through inner emotions, it becomes an important way to understand nature and promote ecological sustainable development.

1.2. The Relationship between Plant Aesthetics and Indoor Space

The relationship between plant aesthetics and indoor space is mainly manifested in the organic integration of natural elements and the artificial environment. By virtue of the aesthetic features such as the shape, color, and texture of plants, the space is endowed with vitality and emotional value. Moreover, the personalization and artistic appeal of the space are enhanced through ecological regulation and decorative functions.

First of all, plant aesthetics promotes the ecological “symbiotic” relationship between plants and indoor space [4]. As the most vibrant spatial element, plants can not only enhance the ecological and interactive qualities of indoor space but also have a positive impact on the environment during their growth process, such as improving air quality and regulating the micro - climate. This, in turn, enhances the overall beauty and comfort of the space. Secondly, plant aesthetics significantly enhance the artistic appeal of indoor spaces. By incorporating elements of plant aesthetics, the coldness of materials like steel and concrete can be softened, adding a touch of natural allure. Meanwhile, it aligns with the modernist pursuit of light, shadow, layers, and textures, creating a more artistically charged indoor environment. Additionally, plant aesthetics broaden the forms of artistic expression. From traditional planting to floral design and the creation of plant aesthetic installations, they enrich the space’s artistic expressiveness.

In conclusion, the relationship between plant aesthetics and indoor spaces is manifested in the dual dimensions of ecological symbiosis and artistic sublimation. It not only optimizes the indoor micro - climate and improves environmental quality through the vitality of plants, achieving an organic integration of natural and artificial environments, but also endows the space with emotional warmth and personalized themes through the artistic expression of form, color, and texture. This relationship ultimately enables the indoor space to go beyond its mere physical functions and become a vibrant field that combines ecological value with aesthetic significance.

2. Aesthetic application of plant aesthetics in indoor space

2.1. Ecological theme space application

Ecological beauty is a concept developed by the German biologist Ernst Haeckel in 1866. It is mainly used to study the relationship between an organism and its surroundings [5]. Ecological aesthetics in the modern sense emerged in the middle of the 20th century, the rise of the industrial revolution damaged the ecological environment to a certain extent, which led to the emergence of aesthetic ideas that emphasise the harmonious coexistence of human beings with nature and the environment. Designers should focus on the health of the ecosystem, biodiversity, material cycle and the harmony of human intervention when designing with plant aesthetics. In the indoor space, the low-maintenance habitat design is shaped through the cycle of “growth - withering - regeneration”, and the dead wood, as a product of natural metabolism, is presented naturally, and combined with the ornamental landscape and the original ecological landscape through the staggered arrangement to show the plants of different life cycles. Form, form a sustainable cycle of dynamic

process, perceive the power of plant life.

2.2. Formal beauty

Formal aesthetics can be summarised as change and unity, contrast and harmony, proportion and scale, symmetry and equilibrium, rhythm and rhyme. Plants in the design of indoor space should follow the laws of aesthetic [6], for example, in the space of the clothing brand, choose the plants that match with the coordination of clothing styles, clothing brand umawang (Table 1), in accordance with the guidelines of the form of beauty in the design. Succulents at the entrance to the natural form and indoor hard furniture to form a contrast between soft and hard, artificial and natural, colourful but harmonious, pots echo the retro tone, but also through the texture of the contrast to add interest to create a spatial rhythm, rich levels, brighten up the dull space, strengthen the plant’s sense of beauty of the form, the plant and the space compliments each other.

Table 1. Formal beauty space application.

Brand	Formal beauty law	Application space	Aesthetic space display
UMAWANG	Change and Unity	Brandscape	
MOLTON BROWN	Rhythm and Rhyme	Commercial Space	
XIN RONG JI	Proportion and Scale	Catering Space	

2.3. Dynamic Beauty

Dynamic beauty in Chinese gardens is characterized by “eDynamic stillness and tranquil motion”. Through the language of space, it combines the fluidity of nature with the contemplativeness of human culture. Dynamic beauty is created by factors such as the growth rhythm of plants, their swaying in the wind, the play of light and shadow, and the changing of flowering periods. It accentuates the fluidity and unpredictable dynamic changes of plant aesthetics, highlighting the vitality and storytelling quality of plants in space

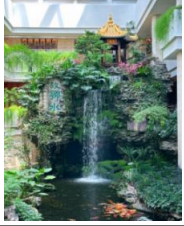
In the tea - space display, the meandering water path of the “Winding Stream with Floating Wine Cups” naturally draws the tea - drinkers’ gazes to the plants. The water surface reflects the dynamic beauty of the plants, facilitating the interaction between the plants and the water flow, light, shadow, and sound, and transforming the static plants into a vibrant dynamic art.This design endows the tea - space with natural

spirituality and reinterprets the Oriental aesthetics of “The garden achieves Tian Ren He Yi — a synthesis where human artistry echoes cosmic rhythms” in the contemporary context.

2.4. Contextual Beauty

Contextual beauty in plant aesthetics refers to the natural form of plants, cultural symbols, artistic configurations, etc. to stimulate the emotional resonance and associations of the viewer, such as the hometown water landscape in the White Swan Hotel. Make plants from purely decorative elements sublimated into cultural symbols, expanding the landscape depth of the environmental space, but also carries the regional cultural characteristics of the human spirit, the beauty of nature sublimated into the humanistic implications. The Craft of Gardens: “Everywhere borders the void, each direction frames a view.” Closed courtyard in the window and set up the door, so that the bamboo and stone landscape reflected in the middle of it, the real and imaginary interlaced, so that the space level is rich, breaking the limitations of space, the White Swan within the use of bamboo elements of the intervention from the base of the plant form of beauty rose to the hometown of the water of the context of the United States, to create a landscape effect of the real and the imaginary, and to achieve the spatial context of the layout of the beauty of the United States (Table 2).

Table 2. Characteristics and application of plant aesthetics.

Dimension	Characteristics	Application of Aesthetics	Application space
Ecological Aesthetics	The aesthetic value of ecosystems, embodied by their functionality, sustainability and inner balance, emphasises the dynamic and systematic nature of natural processes.		Seed Art Centre, Jiaxing, Zhejiang
Formal Beauty	The aesthetics presented directly through visual elements such as external form, structure, colour and proportion.		Guangzhou Wanshi Aesthetic Space
Dynamic Beauty	The aesthetics of changes over time through natural processes or man-made designs, such as plant growth, seasonal cycles, and the flow of light and shadow.		Lambert floral studio
Contextual Beauty	The design conveys emotional, cultural or philosophical connotations, requiring the viewer to experience the deep sense of beauty through association and perception.		Guangzhou White Swan Hotel Hometown Water

3. Design Strategies of Plant Aesthetics in Indoor Spaces

3.1. Follow the Dual-guidance of Ecology and Art

The dual-guidance of ecology and art balances the ecological value and artistic expression of plant aesthetics, which represents a dialectical unity of natural ethics and artistic aesthetics. The core of its design principle is to avoid the dual extremism of sacrificing ecological features for beauty or sacrificing aesthetics for ecological functions. First of all, it's necessary to ensure the ecological adaptability of plants in indoor spaces, namely, whether they can thrive in the indoor environment. Ecological greenhouses and ecological community simulation methods can be employed to mimic the multi - layer structure of plants. By integrating contemporary intelligent ecological art such as LED lights and sensors, we can adjust the lighting for plants while creating interactive art installations. Secondly, in interior space design, the combination of plant aesthetics and art installations creates a “growable art installation”.

Finally, in the design of the entire interior space, when using plants to beautify the space, we not only pursue visual artistic effects. Through scientific configuration and sustainable design, following the principles of ecology and art, we adopt a dual - oriented design to maintain the integrity and unity of plant aesthetics and the interior space.

3.2. Plant enhancement of in-place space design

As cultural symbols, plants not only embody aesthetics but also play a role in activating cultural identity and connotations within a space.

Phalaenopsis (*Phalaenopsis aphrodite* Rchb) (Table 3) is an indispensable plant in the indoor regional cultural characteristics of South China. The petals are shaped like fluttering butterflies, which is a harmonic for Fudian, a symbol of “good fortune”, and it is the first choice of indoor plants for the Spring Festival, symbolising good fortune in the new year. Plants with “regionality” have regional identity, reflecting the climate and other natural environmental characteristics of a certain region, while the embedding of regional plants is the sublimation of plant aesthetics in the design of indoor space, in-depth excavation of the symbols of plants in the local culture, historical memory. Through the methodology of translating local culture by regional plants, plants are structured and reconstructed as cultural symbols, and translated into the perceptible spatial language of indoor space design to establish a spiritual place. However, attention should be paid to the avoidance of taboo plants, such as in Southeast Asian interior space, nightshade (*Telosma cordata*) is a plant associated with the dead, so it will be replaced with eggplant (*Plumeria rubra*). This shows that the correct choice of regional plants is the key to highlight the natural characteristics of the region and strengthen the cultural recognition of interior space design. At the same time, with the development of modern technology, using VR technology yanking artificial intelligence technology, through the RedesignUS way [7], the regional plants are scanned to express the local cultural allusions and the dynamics of the plant growth, and to enhance the material culture layer of the space.

Table 3. Ornamental properties of regional plants.

Species	Latin name	Family	Genus	Ornamental
Phalaenopsis aphrodite	<i>Phalaenopsis aphrodite</i> Rchb	Orchidaceae	Phalaenopsis	
Nightshade	<i>Telosma cordata</i>	Oleaceae	Nightshade	
Plumeria rubra	<i>Plumeria rubra</i>	Oleaceae	Plumeria rubra	

3.3. Spatial design with plant aesthetics function orientation

In plant aesthetics function-oriented indoor space, through scientific planning of plant types, species, forms and scales, to meet spatial needs while optimising the spatial layout and experience, functional plants can not only enhance the aesthetic value of the space, but also promote the user's mental health and quality of life.

From a functional point of view, the selection of plants should be combined with the characteristics of the space and the needs of the users, and Kaplan's theory of attention restoration [8] points out that plants can effectively alleviate the attention fatigue of human beings. Research has further confirmed that plants in natural environments can reduce stress levels and increase emotional pleasure [9]. In office spaces, choosing plants that release oxygen at night, such as tiger's tail orchid (*Sansevieria trifasciata* Prain) (Table 4), can help regulate the spatial energy field and alleviate workplace stress, while in art exhibition spaces, aromatic plants such as jasmine (*Jasminum sambac*) can calm the emotions and enhance the experience of viewing the exhibition. It is worth noting that plant selection should avoid overly ostentatious forms to maintain harmony with interior design.

Based on the previous section, the rational use of functional plants makes indoor space design go beyond mere aesthetic considerations and becomes an important way to enhance the quality of the human environment. By scientifically selecting plants that match the characteristics of the space and giving full play to their ecological regulation and psychological healing functions, we can truly realise the multiple values of plant aesthetics in indoor environments, and create a healthier and more comfortable living space for users.

Table 4. Functional Selection of Plants for Ornamental Purposes.

Species	Latin Name	Family	Genus	Ornamental
Tigress Orchid	<i>Sansevieria trifasciata</i> <i>Prain</i>	Asparagaceae	Pituitary Orchid	
Jasmine	<i>Jasminum sambac</i>	Mignonette	Carnation	

3.4. Spatial design emphasising the visual focus of plants

In indoor space design, the visual focus layout of plant elements can significantly enhance the aesthetic vitality of the space, the core of which lies in the use of plant form and plant modelling characteristics to form a coordinated and unified visual guidance effect.

The design method based on similarity and contrast not only creates a gentle and unified atmosphere through the combination of the same elements [10], but also enhances the sense of visual hierarchy through the combination of different elements. Care should be taken to avoid too many types of elements to ensure the concentration of visual focus. The visual expression is enhanced by the morphological features of foliage plants, such as the linear silhouette of (*Chlorophytum comosum Variegatum*), the blocky shape of (*Monstera deliciosa Liebm*) (Table 5), and the dotted accents of (*Pilea peperomioides Diels*). The combination of the three creates a dynamic balance of points, lines and surfaces in the space. Adopting the scientific composition law “Fibonacci Golden Spiral” for mosaic arrangement composition, the visual focus changes reasonably to form a subconscious visual guidance effect, so that the indoor space is a green focus.

Table 5. Visual selection of plants for ornamental purposes.

Species	Latin Name	Family	Genus	Ornamental
Chlorophytum comosum Variegatum	<i>Chlorophytum comosum</i> <i>Variegatum</i>	Asparagaceae	Chlorophytum comosum	
Monstera deliciosa	<i>Monstera deliciosa</i> <i>Liebm</i>	Asparagaceae	Monstera deliciosa	

Mirror Grass	<i>Pilea peperomioides</i> Diels	Urticaceae	Coldwater Flower	
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3.5. Mobilising spatial mood through plant colour aesthetics

Most people find the use of brightly coloured plants with vibrant flowers extremely attractive and stimulating. Warm colours exude a sense of warmth, pleasure, immersion, happiness, etc. in their use. Cool coloured plants convey a sense of depression, novelty, sanctity, etc. in their use. Studies have shown that flowers above the 27% threshold create a “wow factor” and that dramatic floral displays enhance the aesthetic experience for most people in the short term [11]. Therefore, the beauty of a plant's leaf colour, the splendour of its yellow colour, and the accent of its fruit colour can influence the subtle atmosphere of an indoor space.

Secondly, the unity of plant aesthetics colour, from an objective point of view, the design of indoor space are inseparable from the designer's reasonable use of colour, the colour beauty of plants is the highlight of shaping the vitality of the space, you can use the colour aesthetics of the Menzel's colour ring contrast, such as the crane orchid (*Strelitzia reginae* Aiton) (Table 6) and the blue-flowered dandelion (*Plumbago auriculata* Lam), the strong contrast between blue and orange, highlighting the artistic effect of the space; the colour of the plants is a gift of nature, each plant and each colour articulates heaven and earth and the human heart, the plant aesthetics is particularly important in enhancing the ambience of any environmental space within the ambience, fully demonstrating its form, colour and vitality, adding life and vitality to the spatial ambience, mobilizing the space in the mood of the space.

Table 6. Ornamental of Plant Colour Selection.

Species	Latin Name	Family	Genus	Ornamental
Strelitzia reginae Aiton	<i>Strelitzia reginae</i> Aiton	Strelitziaceae	Strelitzia reginae	
Plumbago auriculata	<i>Plumbago auriculata</i> Lam	Albiziaceae	Plumbago auriculata	

4. Conclusion and Outlook

The intervention of plant aesthetics in interior space is essentially an aesthetic practice of space, and the research and thinking in this field have led to the following conclusions, firstly: the theoretical deepening of the eco-philosophical dimension. The intervention of plant aesthetics in interior space essentially realises a theoretical leap

from the decorative paradigm to the eco-philosophical paradigm. This shift not only responds to the demand for sustainable development and the construction of a healthy living environment, but also reconstructs the cognitive dimension of modern people's perception of nature at the phenomenological level, reflecting the dialectical unity of ecological wisdom and spatial aesthetics. Secondly, the synergistic construction of multiple value systems. Based on the triadic value framework of ecology-art-function, plant aesthetics constructs a self-organised spatial value system through the ecological mechanism of photosynthesis regulation and VOC degradation, the artistic expression of morphology and colour psychology, and the functional strategy of spatial interface reconstruction. Third: the innovative turn of the habitat paradigm. The spatial practice of plant aesthetics is promoting the transformation of habitat design from the mechanistic paradigm to the ecological wisdom paradigm. It enables the enhancement of spatial inclusiveness, the improvement of emotional temperature, and the establishment of intelligent regulation system based on plant physiological feedback. Fourth: Innovation of design methodology. The current theory of plant aesthetics is reconstructing the cognitive schema and operational logic of interior design.

Future research needs to establish a system for assessing the effectiveness of plant aesthetics and improve the transformation mechanism from theory to practice in order to realise the transformation of design methodology from empirical to scientific. The application of plant aesthetics in interior space will move towards a new stage of deep integration of intelligence and life science.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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