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Ecological Aesthetics: Design Thinking to Landscape Beauty with Healthy Ecology

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Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.73615>

Abstract

Scenic aesthetic is the outcome of interactions between humans and landscapes, in general made people focus on landscape beauty. The ecological experience is generally considered an explorative process based on the knowledge of the ecology. One major underlying problem is many people have misconceptions about the relationship of scenic beauty and ecological function; thus, two parallel lines were emerged between the appreciation of landscape and ecology. *People's landscape aesthetic experience* leads people to change the landscape, subsequently ecological function. Ecological aesthetics could date back to the evolutionary theories. The aesthetic preference has changed through time and may reflect the public understanding of ecology, which provides a critical linkage between humans and ecological processes. Landscape aesthetic and ecological quality can coincide in some issues, such as the idea that visual variety in the landscape is stimulated by natural patterns and related to the incidence of biologically productive effects. The experience process and the influential factors of beauty in landscapes with healthy ecology were drawn out, and these result in benefits for good landscape with healthy ecology. Within the contexts and principles, the construction of good healthy ecology and sustainability can be achieved.

Keywords: aesthetic appreciative transaction, scenic beauty, ecological function, ecological aesthetics indicator

1. Introduction

People prefer beautiful, scenic views of landscapes with good ecological health; they tend to appreciate and enjoy this, and positive emotions are aroused. Besides the effectiveness of the aesthetic experience on positive emotions, the benefits of the ecological experience are

also considered in this chapter. Landscape aesthetic has been studied for a long time, in both descriptive inventories and public preference models and in both the expert and perception-based approaches. These studies have revealed the interactions between humans and landscapes as well as the results on the affective and cognitive responses and the composition of landscape aesthetic characters.

These approaches generally accept that the aesthetic experience derives from the perceptual and judgmental process of landscape visual quality assessment. It is public knowledge that ecological quality is important for landscape appearance and scenic beauty; nevertheless, humans cannot directly sense ecological quality [1]. In general, pervious research based on evolutionary and cultural theories assume that high ecological quality is associated with aesthetic quality. These arguments have allowed people to emphasize multiple aesthetic benefits, especially the appearance of the landscape, while ignoring the actual link between landscape and ecological quality; thus, the effect of the ecological aesthetic on the appreciation of landscape aesthetic is often overlooked.

According to the concept of evolutionary theories, people view landscape as a habitat, and aesthetic pleasure is derived from the experience of humans seeking a suitable habitat. Meanwhile, the aesthetic experience leads people to change the landscape, and these changes affect environmental processes and ecological functions. Therefore, a gap exists between the human-dominated landscape design and the ecologist's work, indicating that ecologically sound landscapes may not be aesthetically pleasing. In turn, ecological services and aesthetic attractiveness are like two parallel lines. This is not merely due to human influences on most landscapes, but it is also due to the challenge of climate change and sustainable development. There is no time to lose in bridging this gap.

The relationship between landscape aesthetic and ecology should no longer be described within the environmental behavior models; this may lead to the human aesthetic preference, and ecological goals are not aligned. In reality, however, aesthetic preference is associated with scenic beauty and high ecological quality [2–4].

The study believes that people could provide a direct sense of the ecological aesthetic, including landscape aesthetic and ecological quality manifestation. Aesthetic preference was derived from biophilia evolutionary theories and has developed through the spatial construction of physical landscape characteristics. Ecology was influenced by these characteristic associations. People evaluate their landscape preference while judging ecological quality; thus, it can be agreed that aesthetic experience and ecological quality are in alignment with each other.

On this ground, it is suggested that the objects of aesthetic appreciation are included in landscape and ecology quality. Landscape and ecology are simultaneously examined when people admire the landscape to gather environmental information. Aesthetic value and behavioral responses are the common outcomes of the simultaneous examination of landscape and ecology. This reveals the conceptual framework of the ecological aesthetic experience, as well as the common characteristics and factors that indicate the aesthetically pleasing landscapes that have healthy ecology. That is to say, the common concept of human aesthetic appreciation is combined beauty with quality of landscape and ecology, that is, the nature of ecological aesthetics.

2. The linkage of landscape aesthetics and ecology

The idea that landscapes are perceived as aesthetically pleasing means that people are able to distinguish beautiful scenery from a variety of landscapes. Based on habitat theory of evolutionary hypotheses, people considered aesthetic preferences to determine whether the landscape was suitable for survival [5]. Ecological and aesthetically pleasing environments provide valued experiences that can improve a person's quality of life [6]. This implies that these types of landscapes were beneficial for both human and ecological well-being. Environmental changes and urban sprawl have caused landscape resources to be under attack; therefore, it has been advised that people appreciate and protect landscape resources whether for environmental aesthetics or ethics.

Environmental aesthetics has traditional roots in the seventeenth to nineteenth century aesthetics of nature [7, 8], which present the idea of positive aesthetics. These positions further developed views concerning the natural environment. Leopold's often quoted land ethic defined environmental aesthetics, which tends to preserve the integrity, stability, and beauty of the biotic community [9]. Thus, these positions were distinguished into two groups: labeled cognitive and noncognitive views. Recently, developments in environmental aesthetics have broadened from their initial focus on the natural environment to consider the human and human-influenced environment. Additionally, they extend to everyday life through the consideration of what is known as the aesthetics of everyday activities.

Philosophical aesthetics had major interest in art; by contrast, aesthetics of nature was neglected in the first half of the twentieth century. That revealed the art-dominated construal of aesthetics of that time. The aesthetic for the appreciation of nature was compared with art, but nature was messy and of less philosophical interest. Analytical aesthetics dominated the second half of the century, where empirical approaches emerged with a focus on scenic beauty [10]. These approaches were used in response to the public aesthetic preference for the environment and greatly influenced picturesque landscape. As with landscape aesthetics, a somewhat tangible value could be systematically analyzed and landscape qualities could be translated into formulas useful in landscape design and management. However, that field was thought to lack an adequate theoretical framework. The idea of a socio-biological aesthetic appreciation of nature was prompted, such as is the case in evolutionary theories. According to bio-evolutionary preference, the basic aesthetic preferences of *Homo sapiens* are argued to have evolved in order to enhance survival and reproductive success; this can be seen in the selection of certain landscapes based on survival needs, such as being able to see without being seen in savannah-like landscapes.

In spite of such reservations about the various approaches of environmental aesthetics, the importance of ecology in the aesthetic appreciation of nature is stressed due to increasing concern for environmental issues. With a new interest in the aesthetic of nature and its relationship with people and the built environment, "ecological aesthetics" has emerged in the last several decades [4, 7, 8, 11]. The root idea of ecological aesthetics originated from Aldo Leopold [9, 12–14]. Today, ecological aesthetics incorporate studies of the aesthetics of nature,

Author (year)	Content of ecological aesthetics
Carlson [8]	Ecological aesthetics linked the beauty of nature to ecological integrity and stability; endorsed by engagement and the over-arching value of the ecosystem’s biodiversity and health.
Gobster [15–17]	The different aspects of ecological aesthetic elements, such as individual, landscape, human-landscape, and outcomes combine to gain a deeper understanding and appreciation of nature. This blends with landscape aesthetics and ecological management in order to determine how aesthetic and ecological values are perceived.
Gobster et al. [18]	Ecological aesthetics bound up the visual quality and a pleasurable landscape appearance of ecological processes. It is desirable for humans to take aesthetic pleasure from landscapes that embody beneficial ecological functions.
Hill and Daniel [19]	Aesthetic preferences for natural landscapes are mediated by affective processes and developed by natural selection during human evolution. Ecological aesthetics have brought landscape aesthetic preferences into ecological imperatives.
Jorgensen [2]	Compared to relying on static visual cues of scenic aesthetics, ecological aesthetic appreciation for ecological landscapes was founded on a more dynamic, polysensual, and active engagement with the environment, and based on an understanding of environmental functions.
Koh [20]	The ordering principles in nature and landscape, which are inclusive unity, dynamic balance, and complementary, are the base of environmental ecology design, as an ecological paradigm of aesthetic.
Parsons and Daniel [7]	Ecological aesthetic takes the biological principles of ecosystem management (biodiversity, sustainability, etc.) as given and then asserts that human environmental aesthetic preferences should be consistent with those principles.
Sheppard [21]	Seeks the sustainability of landscape aesthetics and ecology, reflecting upon a deeper consideration of the beauty of the ecological function and process. The idea of visible stewardship may be the common criterion for aesthetic preference and healthy ecosystems.
Toadvine [4]	Ecological aesthetics concerns the aesthetic appreciation of the world, including both the natural and built environment. Whether through phenomenological or cognitive approaches, it has espoused the different modes of aesthetic considerations of specific domains.

Table 1. The content of ecological aesthetics from different researchers.

including natural objects and larger wholes, both within nature and the built environment. Additionally, it involves the relationship between the aesthetic appreciations of good-looking landscape with healthy ecology. **Table 1** summarizes the content of ecological aesthetics as presented by various researchers. The common perspectives considered that ecological aesthetics is a linkage between landscape and ecology. People perceived the appearance of landscape as an experience of the landscape, ecological function, and management as a whole.

3. The shared sources of landscape aesthetic preference and ecological aesthetics

The visual enjoyment of natural scenery has been widely recognized by people’s desire to see, live in, and visit beautiful places [18]. People have also changed the landscape in order to ensure a suitable habitat. In the spatial–temporal milieu of landscape, this response not only expresses

Landscape	Ecological aesthetic attribute	Ecology	Source
Visual scale, viewshed size	Landscape room	Patch size	[3, 16, 19, 21, 26, 27, 30–33]
Unity of a scene; elements or patterns are easy to be organized and fitness to content.	Coherence	Ecosystem, landscape, land use, vegetation suitability for natural conditions	[20, 21, 23, 26, 27, 32, 33]
Depth of view, visual perspective	Openness	The challenge of invasion in larger openings, and may reduce diversity	[19, 30, 31]
Diversity/richness of landscape elements/pattern	Complexity	Habitat heterogeneity, land cover diversity	[21, 23, 27, 32, 34–36]
The holistic view of closeness to natural state	Naturalness	The degrees of naturalness to ecosystem and landscape	[3, 7, 18, 21, 27, 31, 34, 36, 37]
Sense of order, very careful management	Stewardship	Balanced patch size distribution/edge, unfragmented ecosystem	[18, 20, 21, 26, 27, 34]
Pattern/land use interfered, and not fit into context	Disturbance	A discrete event or force brings ecological pattern, habitat change	[16, 21, 23, 26, 34]
Diversity, richness, evenness of landscape patterns, characteristics or elements refer to spatial complexity/coherence perception	Diversity	The elements of biodiversity, richness, and evenness that influence how ecosystems function	[33, 35, 38, 39]
	Richness		[30, 33, 35, 38, 39]
	Evenness		[35]
The variety of landscape types that help with aesthetic attractiveness.	Pattern/land cover (on site)	Land cover has effect on biodiversity, ecological function	[3, 19, 33, 40]
Human activities can result in the decrease of landscape aesthetic and naturalness.	Land use (off site)	The intensity of human-dominated landscapes like constraint in ecological quality of landscape room.	[33, 40–42]

Table 2. The common attributes of landscape and ecology.

landscape preference but also shows people attitude about ecology. The foundational-related theories of above exposition are evolutionary theories [22, 23] and cultural theories [4, 11, 16].

Evolutionary theories have inferred that humans prefer the prototype of landscape that is “to see without being seen,” such as in savanna-type landscapes in which the characteristics of prospect and refuge are present. Furthermore, Kaplan and others, based on information processing theory, suggested the information preference matrix that tracked people’s preference of natural landscape [5, 23–25]. This matrix was made up of making sense (understanding) and involvement (exploration). The arrangement of contents in the natural setting provided an understanding and potential for exploration, that is, environmental information for people perceived landscape.

When environmental information is coherence that means the setting is orderly and easy to understand for people; that would make people considers the environment is more security. The contents were distinctive and easily identified, indicating legibility, in a landscape that helps people have a strong sense of orientation and memories about the setting. Complexity, which is the richness and diversity of the landscape, encourages people to explore it, thus moving deeper and getting more environmental information in the mysterious setting. This implied that the range of the setting was perceived by the human's vision; prospect-refuge theories also asserted that the opportunity to see while not being seen was determined by visibility, and was defined "landscape room." Landscape room is related to the size of the perceptual unit or visual scale [26–28].

People can only hold a certain amount of environmental information at one time; the coherence of the physical elements' arrangement in the visual field is conducive at fore-middle ground, while the topography, taller trees, etc., alter the visible field. Within the landscape, physical elements were abundant and located in the background; this created a complexity and encouraged people to go deeper to explore [24, 26, 27]. Landscape room is not only related to landscape preference but also concerned to the patch size of landscape ecology. Patch size affects the edge and core habitats and species [29].

Herein, the visible field is considered a key factor in shaping the spatial layout of landscape and ecology. The combination of different landscape physical elements and its locations have influences on aesthetic perception and ecological function. For example, the density of tree group affects visual penetration and whether people could catch environmental information easily or not. That also related to the challenge of invasion and the diversity of habitat. Landscape room after landscape room forms a sequence of landscape experiences, which also act as a matrix of landscape ecology structure. The common attributes of landscape and ecology are shown in **Table 2**.

4. Conceptual framework and indicator of ecological aesthetic

4.1. Conceptual framework of ecological aesthetic

Humans involved in the environment within the process of human-landscape and ecological interaction had created ecologically aesthetic preference. People not only perceived the appearance of the landscape but also the ecological state, when engaged with the environment. The content and form of the environment included the variety and structure of the landscape and ecological elements arranged within a landscape environment. Its composition affects the appearance of landscapes and ecological functions. Herein referred to as "the construction of landscape and ecological characteristics," it was furthermore divided into "physical elements" and "spatial layout." The process of the aesthetic experience and behavioral responses was described as transactional and contextual [1]. The former refers to the interaction and transfers that occur between humans and the environment; the latter refers to human behaviors that are shaped by the environment. These parts were assigned as "aesthetic appreciative transactions" and "ecological aesthetic experiences." Afterward, change is an outcome of the aesthetic experiences; executive management, therefore, has to be on the side of human well-being and environmental sustainability. The conceptual framework for ecological aesthetic experiences is shown in **Figure 1**.

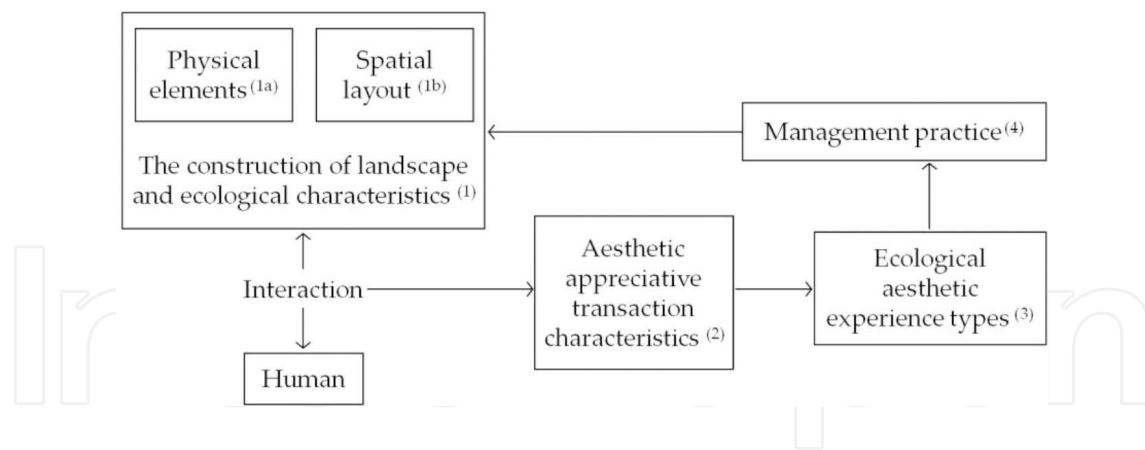


Figure 1. Model of ecological aesthetic experience process.

1. The construction of landscape and ecological characteristics. That is the spatial layout of the physical elements and would influence landscape preference and the structure of the ecological landscape in a landscape room.
 - a. Physical elements. The composite modes of landscape and ecology elements have significant effects on aesthetics value and ecological functions.
 - b. Spatial layout. The elements of landscape and ecology located at a landscape room.
2. Aesthetic appreciative transaction characteristics. People went into and sighted landscape room that was an interactional process between people and ecological landscape. Thus, people make sense of the environmental information, which refers to how they perceive the structure of a landscape room, and breed ecological aesthetic appreciative perception reactions.
3. Ecological aesthetic experience type. Once people comprehend the landscape room, next they would have different ecological aesthetic experience types. In this setting, people may or may not go deeper and get involved in landscape room.
4. Management practice. People modified and managed landscapes based on the outcomes of the aesthetic experience in order to build a suitable habitat and improve the landscape aesthetic.

4.2. The factors of the characteristics of the ecological aesthetics

The adaptable factors of each characteristic of the ecological aesthetic framework are shown in **Table 3**.

4.2.1. The construction of landscape and ecological characteristics

The construction of landscape and ecological characteristics consists of physical elements and spatial layout.

The physical elements are the eight common attributes of landscape and ecology, including vegetation, vegetable structures, vertical elements, water, edge, pattern/land cover, man-made

The construction of landscape and ecological characteristics		Aesthetic appreciation transaction characteristics
Physical elements	Spatial layout	
Vegetation	Landscape room	Coherence
Vegetable structure	Foreground	Openness
Vertical element	Middle ground	Complexity
Pattern/land cover	Back ground	Naturalness
Edge	Overall landscape	Diversity
Man-made feature/human activities	Surrounding environment	Richness
		Evenness
Water		Stewardship
Land use		Disturbance

Table 3. Indicators of each character of ecological aesthetic framework.

features/human activities, and land use. These factors commonly affect the appearance of the landscape and its ecological function. Edges are the boundaries of patterns or landscape rooms. Patterns are the various vegetation clusters or land covers in the landscape room. Land use is land development in the surrounding environment of the landscape room.

The spatial layout shows the physical elements of landscape and ecology allocated in an environmental space. One of the most important indicators in the landscape room is the perceptual unit of people, as it is necessary to sense and manage people. Other indicators are the foreground, middle ground, background, overall landscape, and surrounding environment.

4.2.2. *Aesthetic appreciation transaction characteristics*

Aesthetic appreciation transaction characteristics indicate the perception response while people enter a landscape room, gather, and deal with environmental information. This result has a major influence on ecological aesthetic preference and value. The indicator includes coherence, openness, complexity, naturalness, diversity, richness, and evenness.

4.2.3. *Ecological aesthetic experience types*

Ecological aesthetic appreciation was established based on the tangible value of landscape and ecology resources. The transactional process offers responses to ecological aesthetic experiences that result in a contextual state. Ecological aesthetic experience types may be emotional arousal, cognitive response, and behaviors including escape or approach, positive or negative emotions, legibility, mystery, and so on.

4.2.4. *Management practice*

Aesthetic experiences made people change the landscape and ecological function. This reveals people’s care for and attachment to a particular landscape [43, 44]. Management practices

therefore might establish the relationship between landscape and ecology and enhance the ecological aesthetic [7, 18, 19, 21]. Beauty perception would benefit the will of conservation; therefore, management practice is accepted by people [45]. Man-modified landscapes and respect for nature in certain contexts are well liked [43]. Stewardship is considered the outcome of management; disturbance is an unseemly spoiled landscape and ecology resource.

4.3. The appearance of factors for ecological aesthetic

The various groupings of common indicators of landscape and ecology are located on a landscape room. The spatial distribution is shown in **Figure 2**. The spatial layout of the physical elements includes the construction of landscape and ecological characteristics, where people enter, and the interaction between both. The process of human-landscape interactions rises interest in landscape and has aesthetic appreciation transaction characteristics, thus sprung ecological aesthetic value and preference.

According to prospect-refuge theory, which seems to consider the experience of ecological aesthetics in a landscape room, informational processing theory is a sequence experience of a succession of landscape rooms, based on evolutionary hypotheses. The construction of landscape and ecological characteristics falls into fore-middle-back grounds, in which landscape room after landscape room forms a sequence experience of ecological aesthetics. Combine those with surrounding environments to make up the overall landscape. As people go into landscape rooms and go deeper, they become enclosed in landscape rooms and the overall landscape, and the outcome of the experience of the interaction between both is the ecological aesthetic. The succession and number of patches were benefited aesthetic experiences [3].

If people go into, look at a landscape room, and appreciate it, they seize and comprehend the environmental information of the construction of the landscape and ecology characteristics.

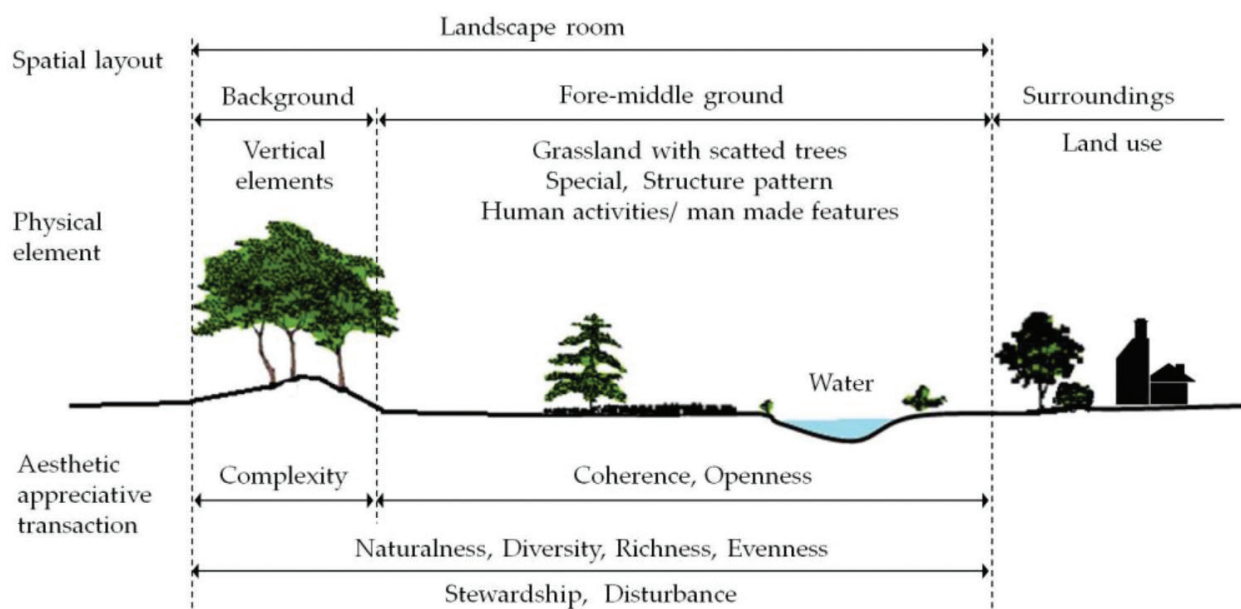


Figure 2. The conceptual scheme conveyed various indicators of landscape with ecology configured on a landscape room.

The relationship between the grouping of physical elements and spatial layout caused people to make sense of the landscape environment. In the species-rich grassland with scarce trees located in the fore-middle ground, people would hold that the environmental information was easy to understand. The visualized landscapes varied in structure in different heights of plants, such as meadow, hedge, and trees, making up patterns in which heterogeneity and diversity were perceived as scenic beauty [23, 42]. A type of setting possessed easier to understand and organized construction characteristics. People consider the setting as coherence and naturalness and show high ecological aesthetic value. Trees are refuge symbols, and the spaces between trees are prospects, according to the Appleton's habitat theory [46]. The various scenarios among landscape and ecological functions also indicate the structure of landscape ecology.

Kaplan and Kaplan [23] supposed that man-made features could drive landscape preference, so keeping the natural landscape free from man-made features is a better option. However, it was not possible to avoid man-made features, as appropriate man-made features would make people favor a place [47–49]; man-made features also relate to place attachment and place identity. For this reason, man-made features must fit the condition of the landscape and ecology and lay somewhere between the middle and background. The same consideration took place on land use and recreational activities.

Water is an important factor in landscape and ecology, as it causes positive perceptive responses and actions and results in habitat and species diversity and abundance. Waterscape was the preferred origin form due to its subtle influence of survival value, according to evolutionary theories. Bodies of water have ecological benefits, especially as a natural edge, that is, water-land ecotones in which the area is characterized by high biodiversity.

On the other hand, a degree of openness can be visually pleasuring, as this determines the opportunity to see while not being seen. Vertical elements, such as taller trees, topography, etc., lay on the background, and open land in the fore-middle ground has contributed to identifying the scale of viewshed. This characteristic of landscape and ecology construction would portray the setting as having complexity and encourage people to go deeper to explore it. Meanwhile, richness and orderly background are considered a key visual aspect for aesthetic preference. According to the informational processing theory [5, 23], an overly enclosed view limits the visual penetration and the ability to move around, which may make it difficult for people to find their way. However, the larger openings not only decreased mysterious perception but also had challenges of invasion and may reduce diversity. People generally prefer smaller openings over larger ones [16, 26, 30, 32, 50] and openings that are scattered over those that are concentrated [16, 50]. This involves an increase in patch heterogeneity and dynamic.

Whenever vegetation is allocated at fore, middle, or background in a landscape room, the diversity of plants is essential. This may cause variety in the visual landscape and ecological function. Richness and evenness are indispensable to the ecological aesthetic. The combination of the three indicators would ensure that the landscape room has coherence and complexity. The former's environmental information being easier to understand is also related to its legibility; the latter is out of respect to the mysterious. It also determines the action responses.

Length of edge is closely related to gain size; this could be considered an aspect of landscape diversity and probably has ties with total viewshed area. Disturbance may cause change in edge length, affected edge, and habitat quality [29, 51]. The edge effects have impacts on visual variety and aesthetic value, which are also related to the incidence of ecological functions.

The spatial patterns of land cover types give rise to various aesthetic experiences [40]. Vegetative cover, human activities, and natural elements affect patterns of landscape, as well as aesthetic and ecological functions of landscapes [52]. Fragmentation in land cover has influenced core habitat and species quality and decreased ecological functions. This also caused visual landscape to lack coherence in the landscape room. Low-input land cover types may contribute to attractiveness of a landscape room, and yet less structures and homogeneous landscapes were less appealing due to a lack of complexity and mystery [23, 25].

Overall landscape is the landscape appearance of the landscape room. The overall appearance must reflect the aforementioned characteristics, so that it can better perform its landscape appearance and ecological functions. As a whole, the visual quality of the overall landscape concedes that the ecological aesthetic value improves with increasing diversity, naturalness, and natural appearance. A high affinity of a natural-looking setting is more favored and receives high aesthetic values.

Visual landscape aesthetic preference is based on biological and evolutionary principles [23], and beauty being in the eye of the beholder is shaped by cultural and contemporary environmental behaviors [16, 18, 30, 33, 53]. For various reasons, landscape and ecology management is carried out. People perceive the outcomes of management as either stewardship or disturbance. Stewardship, as a spatial expression of landscape, is orderly both visually and ecologically. Careful management ensures that landscape ecology maintains its dynamic, balanced state as an orderly process [20]. Stewardship also has an effect on human aesthetic preference [18, 21, 26, 27]. Instead, lacking careful management may lead to secondary succession that modifies flora and changes fauna.

Disturbance causes visual landscape incoordination, ecology disconnection, habitat fragmentation, and isolation. According to informational processing theory, understanding provides a sense of security. When disturbed, a landscape room was perceived as chaotic and disorderly. People may feel distressed and sense inaccessibility if they cannot comprehend the situation of the setting. Disturbance also leads to negative changes in the habitat quality in the long term.

Land use is a description of how a parcel of land is employed by people. Land use intensity of the surrounding environment revealed the police and consciousness of landscape and ecology. Surrounding land use of a landscape room may fit both landscape “needs” and public desires. The lay public may have different sensitivities to responses to the ecological aesthetic that may lead to the loss of development aesthetics for a wide variety of natural phenomena.

The land use of surroundings would change energy flows and nutrient cycles and invasive species in a landscape room, which would also have impacts on visual quality of the overall landscape. The land use of the surroundings must fit well with the landscape room. That means fitting and stewardship land use of the surrounding environment are important for the aesthetic and ecological function of the landscape room.

5. Conclusion

People really love and enjoy a good-looking landscape with healthy ecology; aesthetic preference was human transactions with the environment, as contextualized behaviors changed the landscape. Aesthetic preference for landscapes of relatively ecological quality is associated with behavior that is improved or protective of this resource. Aesthetic preference could be felicitously accommodated by evolutionary theories of the environment. Besides, cultural theories and contemporary environmental behaviors also influenced aesthetic preference. The cognitive and noncognitive (phenomenological) approaches focused on visual perception and preference, given the increasing attachment to the visual imagery and affective responses. These views revealed that the experience of ecology and landscape diverged. For example, ecological experience is all senses engaged, knowledge-oriented, active participation; the benefits are long term, and landscape is dynamic, living, changing and follows the ecological functions. Scenic experience is visual sense, perceptual, object-oriented, stimulus-response process; the outcome is mood change in the short-term, and landscape is static and inanimate. The two views were sure to split up, as ecologists and landscape architects engaged in different settings in general. Basically, the aesthetic experience may be supplied by memory or imagination, not only by present perception. Ecological aesthetic is the catalytic agent to sew together the gap between the scenic and ecological experience.

The previous studies were clarified; in that, human aesthetic preference was a blend of landscape and ecology. People appreciate and enjoy scenic landscapes. Landscape and ecology were combined, and the scenic appearance was the performance that landscape and ecological functions have in common. Some arguments that indicated the disjuncture of landscape aesthetic and ecological function in which humans cannot directly sense ecological quality can be refuted. Ecological aesthetic was based on evolutionary theories to assume that high ecological quality is associated with high aesthetic quality.

In some cases, aesthetic and ecological value may be inconsistent, and *r/K selection theory* can be quoted to explain this state. In ecology, *r*- and *K*-strategists play distinct roles in the ecological succession. Organisms that live in unstable environments tend to produce many offspring and reproduce quickly because the environment changed quickly, that is, *r*-selected species. By contrast, organisms living in stable environments tend to make few offspring, and in stable or predictable environments, *K*-selection predominates. The former meant that in an unstable habitat, the visual landscape may be messy; the latter may represent a mature habitat in which the landscape is orderly. The habitat of *r*-selected species may deduce the appearance of landscape as naturalistic, but not attractive; this was not the preference of the people.

This chapter indicates that high aesthetic quality is associated with high ecological quality, especially in the appropriate visual scale of a landscape room. Meanwhile, the experience process of ecological aesthetic and the common indicators of landscape and ecology were drawn out. The integrative ecological aesthetic standpoint and tools are improved to construct the good seeing landscape with healthy ecology.

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