

Advancing Cultural Landscape through a Visual Quality Assessment Framework: A Literature Review

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Abstract

Visual aesthetic quality is a pivotal aspect in the assessment and preservation of cultural landscapes, particularly within the context of World Heritage Sites. These sites attain global recognition for their exceptional universal value, symbolizing both distinctive cultural and natural heritage. Notably, cultural landscapes, characterized by their aesthetic and visual qualities, frequently constitute a significant component of these recognized locations. This chapter delves into an extensive exploration of multidisciplinary literature, encompassing the research domains of cultural landscape, landscape visual quality, landscape aesthetic value, environmental perception, and preference. By undertaking a comprehensive review, this study synthesizes insights from diverse disciplines to form an integrated conceptual framework for evaluating visual quality in cultural landscapes. The examination extends beyond mere aesthetic considerations to encompass a holistic understanding of cultural landscapes, emphasizing their cultural, natural, and visual dimensions. This integrative approach aims to enhance the assessment methodologies employed in safeguarding and managing the visual aesthetics of World Heritage Sites and other culturally significant landscapes.

Keywords: Cultural Landscape, Visual Quality Assessment, Integrated Framework, Aesthetic Theories, Heritage Conservation

Introduction

In the pursuit of sustainable development, the imperative to safeguard the natural aesthetic values embedded within the cultural landscapes of World Cultural Heritage Sites has gained prominent recognition (UNESCO, 2012). The degradation of these visually enchanting natural environments not only poses a threat to their intrinsic beauty but also raises concerns regarding its adverse impact on human well-being (Ghermandi et al., 2010). Challenges stemming from the unclear identification of visual aesthetic elements, ambiguous

conservation objectives, insufficient tourism presentation, and suboptimal construction and management practices related to human tourism activities have led to the degradation of tourism resources and environmental pollution (Cros & Mc Kercher, 2020).

This study responds to a critical academic concern, undertaking empirical analysis to address an urgent need for resolution. Furthermore, the World Conservation Union underscores the pivotal role of the visual aspect in defining the natural value of landscapes Khalaf (2020), with the aesthetic value of natural landscapes intricately influencing the perceptual allure associated with visual attractiveness (Filova et al., 2015). The contemporary emphasis on landscape construction, transitioning from sheer expansion to heightened overall quality, marks a paradigm shift. In this evolution, the visual aesthetics of landscape construction have emerged as a primary focal point. The present challenge lies in striking a delicate balance between enhancing landscape aesthetics and preserving the integrity of natural resources. This nuanced challenge underscores the critical need for rigorous and systematic evaluations of landscape visual quality, which have become indispensable for both the preservation and strategic development of landscapes.

As World Cultural Heritage Sites garner global acclaim, it becomes evident that a lack of standardized and comprehensive methods impedes the thorough evaluation of the visual aesthetic values and overall quality of such sites. This lacuna poses substantial barriers to the sustainable development and effective management of cultural landscapes, impeding the fulfillment of user expectations for immersive and culturally rich visual experiences. Within this overarching context, this literature review seeks to propel the discourse on cultural landscapes forward by introducing a comprehensive Visual Quality Assessment Framework. Beyond offering a systematic evaluation approach, this framework establishes a foundation for future research and practical applications in the specialized field of cultural landscape preservation and enhancement.

Theories Supporting Visual Quality Assessment of Cultural Landscapes

Promoting social interaction, physical activity, and recreational pursuits, the aesthetic character of a landscape can improve the health and well-being of individuals. The investigation of visual quality holds considerable importance in the preservation of cultural landscapes and the attraction of tourists. In the study of the relationship between individuals and their surroundings, aesthetic value, visual quality, and visual preference are all interchangeable terms. The researchers evaluated the quality of the landscape by observing the surrounding area and applying theories of visual quality that have their roots in the field of landscape quality research. The researchers emphasized the importance of aesthetic value in the field of visual studies by defining high-quality landscapes as aesthetically pleasing or valuable (e.g., Schirpke et al., 2013, 2013; van Zanten et al., 2016; Hermes et al., 2018). The concept of aesthetics is multifaceted, encompassing art, philosophy, social science, and cultural history. Its definition is contingent upon the domain in which it is deliberated. Aesthetics is a philosophical discipline that primarily investigates the concept of aesthetic attractiveness and the process by which artworks are assessed conceptually. Aesthetics is associated with an individual's capacity to evaluate objects from multiple facets, including practical utility, rarity, emotions, and personal experiences, from a psychological standpoint. A positive emotional response is frequently accompanied by pleasure, which is commonly encountered when one perceives an object as attractive. Traditional aesthetic theory posits

that beauty is defined by fundamental qualities such as proportion, harmony, symmetry, and order. The appreciation and delight derived from the visual perception of natural landscapes constitute the definition of landscape aesthetics (e.g., Nohl, 2001; Jorgensen, 2011; Mundher et al., 2022). Indicators of objectives for this research were derived from pertinent studies concerning the evaluation of landscape aesthetics and quality.

Landscape Aesthetics Philosophy

During the period spanning from the 1970s to the 1980s, several studies were conducted to examine the influences of aesthetic value or the attractiveness of landscapes. As an illustration, Crofts (1975) proposed that hydrological features and topographical elements impact the aesthetic appeal of landscapes. When evaluating a landscape, Unwin (1975) suggested that observers should concentrate on the surface land-use characteristics and ground contour. Dearden (1980) categorized thirty landscape features that have the potential to influence the aesthetic appeal of a given area, including roads, forests, lakes, and coastlines. These studies establish the foundational principles that guide subsequent research on the aesthetic value or visual quality of landscapes and provide the theoretical framework for evaluating these attributes objectively. Additionally, they proposed a method by which objects examined in visual quality research can be identified via direct observation at the research site, as opposed to depending on a conceptual framework (Acar et al., 2006; Polat & Akay, 2015; Shayestefar et al., 2022). The two theories that are frequently applied in the field of visual quality evaluation are the landscape quality assessment method developed by Daniel and Vining in 1983 and the paradigms for assessing perceived landscape values established by Zube et al. in 1982 (Mundher et al., 2022). Nonetheless, these two studies have examined dissimilar facets. The study conducted by Zube et al (1982) aimed to examine the correlation between human cognition and landscape characteristics. They proposed a theoretical framework demonstrating that physical elements, compositional constructs, locational context, and naturalism are all properties that affect landscape quality. The research conducted by Zube et al (1982) is predominantly focused on landscape quality; consequently, their theoretical framework is excessively general to encompass specific aspects of visual quality. As a result, this research employs the framework proposed by Daniel and Vining (1983), which focuses on visual quality as a fundamental principle.

Aesthetic value has been a distinct concept since the 1990s, when it supplanted the term 'landscape quality' in research pertaining to visual quality. Lothian (1999) suggested that the evaluation of landscape quality could be conducted using two paradigms that are diametrically opposed. One theoretical framework posits that quality is intrinsic to the physical environment, whereas the other considers quality to be an intellectual creation. This theory is consistent with the dictionary's definition of visual quality, which outlines two components: the distinguishing characteristics of an object and the level of excellence it exhibits (Daniel & Vining, 1983). Lothian (1999) is credited with being the first to suggest that the evaluation of visual quality ought to incorporate elements of both objectivism and subjectivism. Lothian (1999) analyzed the competing paradigms of landscape aesthetics considering the ideas of philosophers including Plato, Locke, and Hume. Lothian's (1999) seminal work on landscape visual quality established the groundwork for subsequent investigations into the aesthetic worth of landscapes and the formulation of measurement objectives. Research on the aesthetic value of landscapes has primarily focused on examining the correlation between individuals' perceptions and the physical attributes of the environment since the year 2000. These research endeavors are fundamentally concerned

with determining how objective variables affect subjective experiences. The study conducted by Kang and Liu (2022) examined the correlation between landscape categories, visual aesthetic quality, and the consensus of visitors' visual preferences. The study postulated, in accordance with the theory that visual aesthetic evaluation should be grounded in both the physical and psychological paradigms, that landscapes exhibiting extreme aesthetic qualities would elicit a more substantial consensus than those featuring moderate aesthetic qualities. The aesthetic worth of a given landscape was established through research on landscape quality. Physical properties were the primary focus of landscape quality research from the 1960s to the 1990s. The targets that were assessed were the discernible components of the environment, whether natural or man-made. Consequently, numerous studies, including those by Shafer et al (1969); Crofts (1975); Daniel & Vining (1983), established the theoretical foundation for subsequent research concerning the aesthetic qualities of the environment. The notion of 'aesthetic value,' as initially introduced by Lothian in 1999, has emerged as a suitable metric for assessing the visual excellence of landscapes. Lothian (1999) delineated two dimensions that warrant the attention of visual quality research: the psychological characteristics of individuals and the physical attributes of the environment. The theoretical framework utilized in this study was Lothian's (1999) to ascertain the characteristics that influence the intrinsic value of cultural landscapes.

Visual Quality and Visual Preference

In the study of the relationship between individuals and their surroundings, aesthetic value, visual quality, and visual preference are all interchangeable terms. They pertain to visual components with the capacity to impact human cognition. The evaluation of aesthetic value, visual quality, or visual preference in the built environment consists of two components: objective and subjective (Lothian, 1999). Objectives concern the characteristics of elements present in the biophysical or constructed environment (Daniel, 2001; Tveit, 2009; Tieskens et al., 2018). The term 'subjective' is frequently employed to denote the aesthetic cognition of individual consumers, or as the proverbial saying goes, 'the eye of the beholder' (e.g., Tveit, 2009; Frank et al., 2013; Wang et al., 2016). To prevent any confusion regarding synonymous concepts, the aim of this study is to depict aesthetic value through landforms and land cover, which have an impact on the visual quality of the cultural landscape. The subjective nature of visual preference is indicative of human cognitive processes. Previous research has utilized two distinct methodologies to categorize the elements that impact the aesthetic appeal of the cultural environment. One approach entails the classification of elements into natural and man-made components. They are classified as land cover and landforms in the second. In contrast, there is a wide range of visual preferences among visitors. The landscape perception model (Kaplan & Kaplan, 1989), the scenic attractiveness estimation method (Arthur et al., 1977). The prospect-refuge theory (Appleton, 1975), along with other prevalent theories, is employed to elucidate individuals' visual preferences (Appleton, 1984). This segment provides an overview of the evolution of visual quality assessment across various contexts and specifies the metrics that will be examined in the present study.

Subjectivist viewpoints regard the quality of landscapes through the lens of human emotion, emphasizing the interpretations, interpretations, and connotations elicited by observers. This perspective embodies the adage 'beauty is in the eye of the beholder' (Strumse, 1994; Salih et al., 2023). The aesthetic quality of natural resources is embodied in the landscape, and the subjective evaluation and worth of aesthetic satisfaction and appraisal

can vary considerably (Mundher et al., 2022). Individuals' preferences regarding the aesthetic qualities of landscapes are influenced by a multitude of personal attributes, such as social standing, vocation, background, experience, and culture. Visual preference is commonly assessed in terms of the viewer's liking of the scenery and can be defined as the landscape's comparative aesthetic excellence. Utilized by decision-makers to evaluate and design landscapes, this index is regarded as the most effective means of communicating public preferences regarding the landscape. The comprehension of individuals' visual inclinations is frequently established upon the environmental preference model (Kaplan & Kaplan, 1989) and the prospect and refuge theory Appleton (1975) within the realm of aesthetic value research. These two hypotheses play a pivotal role in establishing the structure for evaluating visual quality.

To investigate the relationship between visitors' preferences and landcover type, the Environmental Preference Model was developed (e.g., Ode et al., 2010; Mahdih et al., 2011; Shahhoseini et al., 2023). Environmental preference is affected by landcover, according to (Kaplan et al., 1989). Physical elements include coherence, complexity, legibility, mystery, openness, safety. The capacity to recognize and value the intrinsic structure of a scene, or the way its components harmonize, is referred to as coherence. The degree of complexity in a given scene is proportional to the abundance of the landscape (e.g., Shahhoseini et al., 2015; Shahhoseini et al., 2023). Complexity is defined as the variety and abundance of the elements, features, and their interspersions. The ease with which a scene can be identified, comprehended, and directed is referred to as its legibility. Furthermore, it exudes a sense of accessibility by virtue of its walkability and visual accessibility, which prevents disorientation (e.g., Shayestefar et al., 2022). The motivation and excitement of uncovering additional concealed information are both derived from the mystery that the audience uncovers while observing scene elements. Additionally, it is described as the degree to which a scene inspires a viewer's further investigation and fascination, thereby encouraging them to proceed in their stroll (Mahdih et al., 2011; Akhir et al., 2021). The capability of an observer to obtain a broad perspective of the scene is referred to as its openness. Openness is contingent upon the line of sight and viewable area, which in turn are impacted by the obstructing size or breadth of the forest and are primarily determined by the topography of the forest (e.g., Strumse, 1994). Smoothness refers to the degree of consistency or evenness exhibited by the texture of the ground (Strumse, 1994; Hassanpour et al., 2020). Individuals can move about the area effortlessly and without exertion, as indicated by locomotion. In aesthetic quality value research, the four most frequently used indicators are coherence, legibility, complexity, and campuses Akhir et al (2022); Salih et al (2023); streets Chon & Scott shafer (2009); Santosa et al (2018); towns Yao et al (2012); forests MIsgav & Amir (2001); Eroğlu et al (2018); and parks (Acar et al., 2006; Zhang et al., 2021; Shahhoseini et al., 2023).

The influence of environmental features on behavior is described by Appleton's (1975) Prospect and Refuge theory. It defines a habitat as a natural area that was necessary for hunting, gathering, or cultivating food, as well as a location where hazardous predators roamed, in accordance with the behavior and relationship of human ancestors into habitats. In these circumstances, enclosed spaces are thought to induce feelings of security and tranquility, while the possibility of accessing the outdoors is thought to be invigorating and thought-provoking. A sanctuary is a location where one can conceal something, which relates to the subjective experience of security (Lis & Iwankowski, 2021). A prospect is a location with an unobstructed view, which signifies the subjective experience of openness. Consistently demonstrated to influence visual preferences (e.g., Wang et al (2016); Eroğlu et al (2018),

Prospect and Refuge, which are comparable to the indicators of Kaplan & Kaplan (1989), have been examined numerous times in studies of visual quality in landscape area. As a conclusion, numerous studies on aesthetic quality value have examined the credibility of the environmental preference model and the prospect and refuge theory. The research of aesthetic qualitative value is hypothesized to be amenable to the application of indicators derived from these theories, including complexity, legibility, mystery, coherence, openness, and safety. The environmental preference model and the prospect and refuge theory were therefore utilized as the theoretical foundations for this study.

Theoretical Framework and Conceptual Framework

Aesthetic Value Quality Research conducted in cultural landscape is the subject of this study, which is grounded in the philosophy of landscape aesthetics. The fundamental purpose of visual quality research, as depicted in Figure 1 by Lothian (1999), is to examine the correlation between subjectivity and objectives. Objectives encompass various physical characteristics of the environment, including roads, lakes, and recreational facilities (Mahdieh et al., 2011; Stojanovic et al., 2018). Objectives are also referred to as aesthetic quality in this study. The prevailing methodology employed in aesthetic value quality research involves the direct analysis of images to extract landscape elements that can be measured (e.g., Mundher et al., 2022; Salih et al., 2023). To mitigate potential errors arising from the researcher's subjective judgment, content analysis in visual aesthetic research often draws upon prior studies as a foundation. The present study employs the methodology outlined by Brown and Itami (1982) to ascertain the objectives that influence aesthetic value. Natural landscape and artificial landscape are the categories of objectives pertaining to the landscape. Codes for content analysis in natural landscapes encompass lakes, lawns, trees, boulders, and tall vegetation, as well as lakes, grass, trees, and trees; these codes are derived from visual aesthetic research conducted in parks. Roads, long-span bridges, sports fields, and pavilions, in addition to sculptures, garbage cans, buildings, and children's play areas, are governed by codes for artificial landscapes.

The subjective, as defined by Lothian (1999), pertains to aspects of human cognition that are influenced by physical properties, including safety, coherence, and complexity. The subjective is also referred to as visual preference in this study. This study utilizes the theoretical frameworks established by Kaplan & Kaplan (1989); Appleton (1975), as depicted in Figure 1. The framework demonstrates that aesthetic value quality is represented subjectively. Aesthetic value research regards the environmental preference model and prospect refuge theory as authoritative theories. Numerous aesthetic value research studies have examined elements including safety, coherence, openness, mystery, and complexity. To examine the correlation between landscape elements and behaviours, the Prospect and Refuge theory was postulated (Stamps, 2008a; Stamps, 2008b). To examine the behaviours of both visitors and residents in the cultural landscape, the underlying theoretical framework selected was the System for Observing Play and Recreation in Communities. McKenzie et al. (2006) classified the activities of visitors into three categories: sedentary, regular, and moderate. As a result, the System for Observing Play and Recreation in Communities was utilized to gather information regarding behaviours that are influenced by aesthetic value.

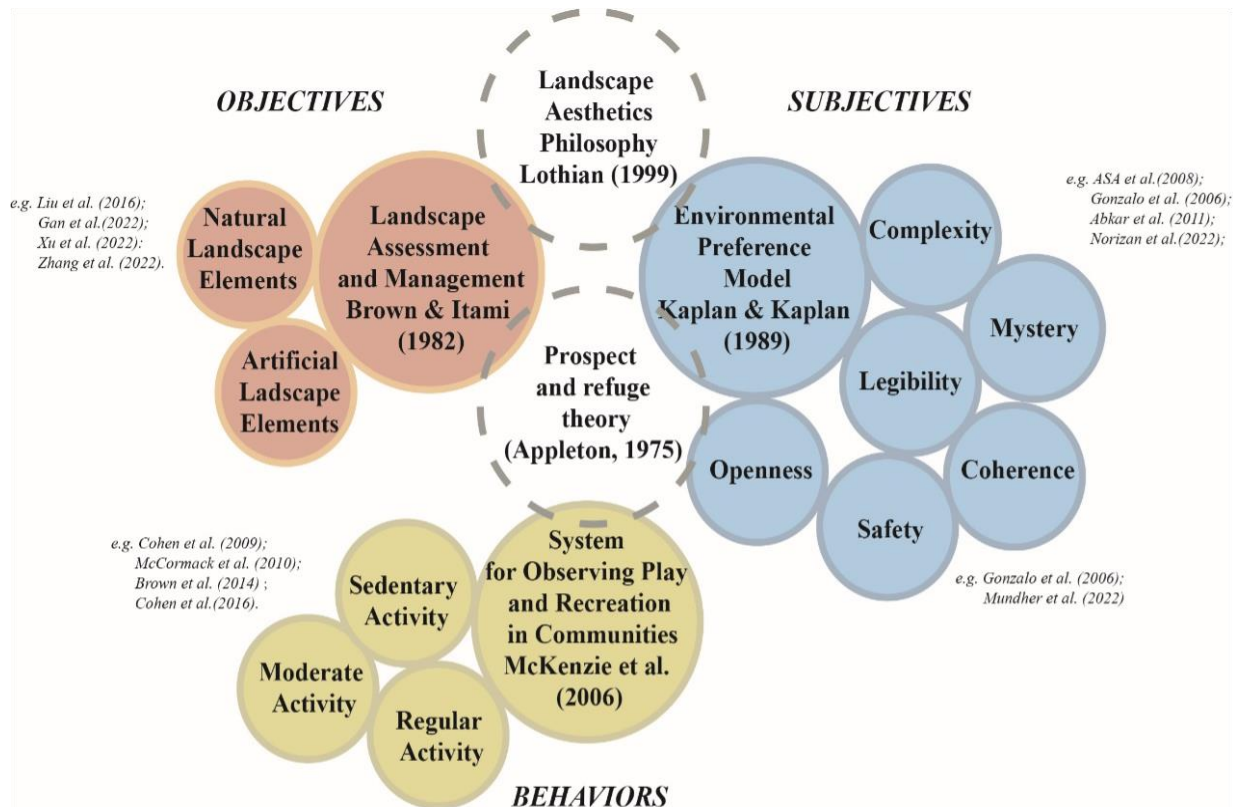


Figure 1. Theoretical Framework and Conceptual Framework (Design by Author).

In brief, the purpose of this study is to examine the correlation between individuals' visual preferences and their related behaviors. The following theories were selected as foundational elements: landscape aesthetic philosophy, environmental preference model, prospect refuge theory, landscape assessment and management, and community play and recreation observation system. These theories, according to Lothian (1999), symbolize objective properties, subjective beliefs, and human behaviour, respectively. Consequently, natural landscape, artificial landscape, complexity, enigma, legibility, coherence, openness, safety, sedentary activity, regular activity, and moderate activity are the variables evaluated in this study.

Conclusion

In conclusion, this study has provided a comprehensive examination of the visual aesthetic quality of cultural landscapes, leveraging aesthetic theories to establish an integrated framework. This framework not only clarifies each variable but also serves as a valuable tool for assessing visual aesthetic quality in world cultural heritage areas. The practical application of this framework offers local governments a more straightforward and sustainable approach to making informed judgments for the protection of the aesthetic quality of cultural landscapes. The literature review conducted in this study underscores the existing body of research on visual quality, visual preference, aesthetic value, and behaviors in cultural landscape. In contrast to previous studies, this research contributes a comprehensive and systematic examination within the context of cultural landscapes, offering valuable insights into leveraging visual quality assessments for sustainable development. Through these contributions, this study aims to advance the understanding and management of visual aesthetics, particularly in the intricate realm of cultural landscapes.

While the study has successfully defined and comprehended variables for visual aesthetic quality, the recognition of their unequal weights and importance calls for careful consideration in future research. Further exploration is essential to determine the applicability of these variables and establish robust methodologies for their assessment. Moreover, this research lays the foundation for identifying key visual aesthetic variables, providing guidance for researchers, world cultural heritage managers, communities, and non-governmental organizations in effectively protecting and managing the visual aesthetics of cultural landscapes.

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