

A Statistical Method for Evaluating the Factors Influencing the Visual Quality of the Historical City Center of Edirne Province

Edirne Tarihi Kent Merkezi Görsel Kalitesini Etki Eden Faktörlerin Değerlendirilmesine Yönelik İstatistiksel Bir Yöntem

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Abstract

The visual impact of an area refers to how people perceive the environment, having positive or negative effects on environmental characteristics. An increase in visual quality positively impacts the aesthetics of the environment while improving the citizens' quality of life and fostering tourism activities. This study aims to evaluate the factors affecting visual quality in the historic city center of Edirne, which possesses high cultural value and tourism potential. The study is based on a psychophysical model that measures the relationship between the physical characteristics of the landscape and the perceptual decisions of the users. During the data collection process, photographs taken from 38 strategic points representing the visual character of the area were utilized. These photographs were evaluated by 97 random participants selected through a simple random sampling method, which is critical for the reliability of the results. In the evaluation, 10 different parameters were used: landscape aesthetics and historical texture, cultural objects, elements disrupting the texture, color harmony, focal image, degree of naturalness, maintenance, complexity/order, sense of security, and excitement/mystery. In the analyses conducted via the SPSS software, the effect of the parameters was tested using regression analysis, while their relationship with user appreciation was tested using correlation analysis. As the most important finding of the study, it was determined that the parameter most strongly affecting the visual quality scores was excitement/mystery ($\beta=0.188$), and the parameter with the highest correlation with user appreciation was the sense of security ($r=0.665$). As a result of the statistical evaluations, it was observed that the majority of the city center has moderate or poor visual quality. These findings provide an evidence-based foundation for local administrators and planners in restoration decisions, making a strategic contribution to Edirne's sustainable tourism vision and the quality of life of its residents through the preservation of historical texture and the improvement of urban aesthetics.

Öz

Bir alanın görsel etkisi, insanların çevreyi algılama biçimidir ve çevresel özellikler üzerinde olumlu veya olumsuz etkilere sahiptir. Görsel kalitenin artması, çevrenin estetiğini olumlu yönde etkilerken vatandaşların yaşam kalitesini artırmakta ve turizm faaliyetlerini geliştirmektedir. Bu çalışma, yüksek kültürel değere ve turizm potansiyeline sahip Edirne tarihi kent merkezindeki görsel kaliteyi etkileyen faktörleri değerlendirmeyi amaçlamaktadır. Çalışmada, peyzajın fiziksel özellikleri ile kullanıcıların algısal kararları arasındaki ilişkiyi ölçen psikofiziksel model temel alınmıştır. Veri toplama sürecinde, alanın görsel karakterini temsil eden 38 stratejik noktadan çekilen fotoğraflar kullanılmıştır. Bu fotoğraflar, sonuçların güvenilirliği açısından kritik olan basit tesadüfi örnekleme yöntemiyle seçilmiş 97 rastgele katılımcı tarafından değerlendirilmiştir. Değerlendirmede; peyzaj estetiği ve tarihi doku, kültür objeleri, dokuyu bozan unsurlar, renk uyumu, odak görüntü, doğallık derecesi, bakım, karmaşıklık/düzenlilik, güvenlik hissi ve heyecan/gizem olmak üzere 10 farklı parametre kullanılmıştır. SPSS programı aracılığıyla yapılan analizlerde, parametrelerin etkisi regresyon, kullanıcı beğenisiyle ilişkisi ise korelasyon analizi ile test edilmiştir. Çalışmanın en önemli bulgusu olarak, görsel kalite puanlarını en çok etkileyen parametrenin Heyecan/gizem ($\beta=0.188$) olduğu, kullanıcı beğenisiyle en yüksek korelasyona sahip parametrenin ise Güvenlik hissi ($r=0.665$) olduğu tespit edilmiştir. İstatistiksel değerlendirmeler sonucunda kent merkezinin büyük bölümünün orta veya zayıf görsel kaliteye sahip olduğu görülmüştür. Bu bulgular, yerel yöneticiler ve plancılar için restorasyon kararlarında kanıta dayalı bir altlık sunarak; tarihi dokunun korunması ve kentsel estetiğin iyileştirilmesi yoluyla Edirne'nin sürdürülebilir turizm vizyonuna ve kent sakinlerinin yaşam kalitesine stratejik bir katkı sağlamaktadır.

INTRODUCTION

Landscape encompasses the historical, cultural, structural, visual, and ecological aspects of the earth's surface (Güngöroğlu, 2008). According to Özhancı and Yılmaz (2011), the landscape as a whole is composed of ecological, socio-economic, and aesthetic values of natural and cultural assets within a field of view (Kiper et al., 2017). The European Landscape Convention defines landscape as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe, 2000). In urban landscapes, this interaction is fundamentally linked to how space is perceived and experienced over time. Indeed, the preservation and enhancement of visual resources in historical contexts rely heavily on the structural and experiential legibility of the built environment. According to Lynch (1960), urban identity is constructed through a mental image formed by distinct spatial elements like landmarks and paths, while Cullen (1961) argues that the aesthetic quality of historical towns is captured through 'serial vision'—the sequential visual shocks experienced by an observer moving through changing urban spaces. Within this broad understanding, analyzing the visual quality of historic city centers has become a critical endeavor for preserving and sustaining urban visual identity. Visual quality relates to the aesthetic characteristics of urban spaces, their spatial fluidity, their harmony with the surrounding context, and the quality of the messages conveyed to users regarding identity and meaning. Studies in this field address visual quality in both objective dimensions—such as image data, the appearance of architectural elements, and contextual harmony—and subjective dimensions—such as user perception and shared socio-cultural values (Szczepańska & Pietrzyk, 2020; Shehata, 2022; Phetsuriya & Heath, 2023; Gönül & Durak, 2025).

Human perception has been defined as the process of selecting, organizing, and interpreting the information received through the senses (Porteous, 1996; Bell, 2012). Among all senses, vision is recognized as the most dominant in environmental perception (Çakıcı & Çelem, 2009). Visual perception generates an aesthetic mental image of the landscape, which the observer evaluates through contrasts such as good or bad and beautiful or ugly, a process that can be expressed as appreciation (Aytaş & Uzun, 2015). Therefore, the visual impact of an area has a direct influence on how the environment is perceived and, consequently, on users' interests and preferences. Visuality itself may be defined as the totality of logical expressions produced by images perceived through the sense of vision (Temelli, 2008), while visual landscape quality emerges as a common product of visible landscape characteristics interacting with the observer's perceptual and emotional psychological processes (Özgeriş, 2014). The visual preferences of users depend on many variables, with socio-cultural and demographic factors—age, gender, education, profession, and income—being the most influential (Elinç, 2011; Özgeriş, 2014). (Rapoport, 1977; 1982) further pointed out that visual quality has both positive and negative impacts on individuals depending on environmental characteristics, while the (Landscape Institute, 1995) emphasized a strong relationship between landscape and visual quality (Cengiz, 2014).

(Özgüç, 1999) stated that the most accurate method for protecting visual resources is to determine the visual quality of a region during the planning stage (Özgüç Erdönmez & Çağlayan Kaptanoğlu, 2008). Indeed, visual perception serves as a key variable in land-use planning, resource management, decision-making, and strategy development (Clay & Daniel, 2000; Uzun & Müderrisoğlu, 2011; Caf & Yılmaz, 2014; Kiper et al., 2017).

(Özgüç Erdönmez & Çağlayan Kaptanoğlu, 2008) argued that, given increasing environmental problems and diminishing green areas, there is a growing need to evaluate landscapes both economically and aesthetically. Studies on visual landscape quality conducted for land-use planning, design, and management contribute to the aesthetic development of cities and improve the quality of life for inhabitants (Aytaş & Uzun, 2015).

Furthermore, visual landscape quality evaluations in planning and design studies contribute to regional tourism development by providing important infrastructural foundations (Özgeriş, 2014; Kiper et al., 2017).

Visual quality evaluation studies have traditionally been structured around three main model types: physical, psychological, and psychophysical approaches (Zube et al., 1982; Elinç, 2011). The physical model is a technique in which experts—such as landscape architects, planners, and resource managers—evaluate landscape quality by creating a land inventory that accounts for all characteristics that might influence the aesthetic value of a particular area. The psychological model analyzes and evaluates user preferences for the landscape through statistical methods. The psychophysical model, developed by (Daniel & Boster, 1976; Daniel, 2001), combines formal aesthetic and psychological approaches, thereby determining the statistical relationships between the physical characteristics of the landscape and the perceptual decisions of users (Özgüç Erdönmez & Çağlayan Kaptanoğlu, 2008; Özgeriş, 2014). This latter model emerged in response to the limitation that purely physical evaluations did not sufficiently account for user preferences, and it is frequently employed to investigate the influence of basic landscape elements on user perception.

In recent years, the methodological scope for assessing visual quality in historical urban environments has expanded considerably. One fundamental approach is Townscape Character Assessment (TCA), which systematically evaluates street textures, building characters, spatial expression, and socio-cultural values to define and protect a city's authentic character—as demonstrated in the Chiang Mai Old City study, where four focal areas (streetscape quality, cultural expression, perceptual factors, and socio-cultural values) were employed (Phetsuriya & Heath, 2023). Another significant development is the integration of multiple data sources—such as 360° ground video and UAV-based photogrammetry—to create 3D city models that enable cost-effective visual quality analysis and building classification, particularly in historic centers with narrow streets and limited budgets (Lo Brutto et al., 2018; Previtali et al., 2023). Furthermore, automated and semi-automated methods utilizing AI and image processing have been developed to measure visual degradation indicators—including deteriorated facades, graffiti, and disruptive signage—through platforms such as Google Street View, enabling the monitoring and mapping of visual change over time (Vallebuena & Lee, 2023). Additional studies have linked visual quality to spatial and mechanical indicators such as walkability and visual flow, relating the visual quality of the urban fabric to user perception (Gönül & Durak, 2025).

In historic city centers, the key parameters influencing visual quality encompass several interrelated dimensions. Urban texture and composition—including the arrangement of streets, building groups, nodes, edges, and the harmony of prominent architectural elements—are decisive. Visual quality in such settings is not limited to architectural aesthetics; religious spaces, cultural activities, and social practices that ensure the continuity of spatial identity also shape quality perception (Phetsuriya & Heath, 2023; Loakaewnoo, 2024). Moreover, visual degradation indicators such as facade deterioration and inappropriate interventions negatively affect urban visual quality indices (Vallebuena & Lee, 2023), while panoramic and contextual visibility—evaluated through vista-based and VR/panoramic assessment methods—can more precisely reveal visual quality variations along viewsheds (Gönül & Durak, 2025).

When various visual quality evaluation studies are examined with regard to specific parameters, (Çakıcı & Çelem, 2009) used spatial characteristics and preference criteria in an urban park; (Caf & Yılmaz, 2014) assessed naturalness, diversity, mystery, harmony, and landscape beauty along a highway route; (Appleton, 1975; Kaplan & Kaplan, 1989; Aytaş & Uzun, 2015) emphasized comfort, intelligibility, compatibility, naturalness, safety, and historical value in an urban pedestrian zone; (Benliay & Soydan, 2015) applied naturalness, consistency, clarity, perspective, and order in a rural bicycle route; and (Kiper et al., 2017) used harmony, legibleness, land shape,

recreation value, and landscape beauty in a rural recreational area. In these studies, photographs are commonly used to evaluate quality parameters, with the selection and positioning of photographs being an important methodological factor (Cengiz, 2014).

More recently, such photographic assessments have been complemented by remote sensing data, Street View imagery, and multi-parametric survey instruments, further supporting data-driven decisions in historic center management (Szczepańska & Pietrzyk, 2020; Shehata, 2022; Gönül & Durak, 2025).

Collectively, the literature demonstrates that visual quality analysis in historic city centers requires a multifaceted approach—one that integrates traditional psychophysical evaluations and community participation with contemporary technological tools. Different approaches, including TCA, 3D/UAV-based models, and visual degradation indicators, complement one another and underscore the necessity of not relying on a single method (Phetsuriya & Heath, 2023; Previtali et al., 2023). In application, an integrated framework that accounts for local values, socio-cultural context, and stakeholder participation must be developed and adapted to regional diversity (Shehata, 2022; Loakaewnoo, 2024).

The aim of this study is to determine and evaluate visual landscape features, user preferences, and recreation tendencies in the historical city center of Edirne. By employing a statistical methodology that integrates both physical context and user perception, this study seeks to assess the value of the urban landscape. The findings are expected to contribute to the sustainability of the city's visual resources, support policy-making for urban conservation, improve the quality of life for Edirne's inhabitants, and enhance the city's existing touristic potential.

MATERIAL AND METHOD

Material

The study area is the historical City Centre of Edirne province and the material of the study consists of the 38 photographs taken there (Figure 1). Edirne was the capital of the Ottoman Empire for 93 years and the state capital during the Roman Empire Hadrianopolis period. It has great tourism potential because of its cultural values and its location on the European border. According to the report prepared by Euromonitor International (2017), Edirne, which is the 68th city receiving the most tourists in the world, was visited by 2.934.100 foreign tourists in 2017. Local and foreign tourists show great interest in the historical City Center.

As the increase in the quality of the visual landscape would influence tourism, the visual quality analysis of the historical City Center of Edirne was considered in this research. Accordingly, the methodology within this study area focuses on identifying visually high and low-quality places, determining the prominent parameters influencing the visual quality, and revealing the relationship between these parameters and user appreciation.



Figure 1. Location of study area and photographing points

Method

A total of 148 photographs were taken between May 2022 and September 2024 during the data collection phase of the study to document the area's existing visual character. Considering the duration of the visual assessment survey and participants' concentration capacity, 38 representative photographs were selected from this pool. These 38 scenes were selected based on the criterion that they most intensely encompass the streets and avenues of Edirne's historic city center used by residents and tourists alike. This ensured that the selected visuals would reflect the city's primary pedestrian axes, cultural focal points, and main arteries with tourism potential in a homogeneous and objective manner.

Thirty-eight photos of Selimiye Mosque and Square, Kaleiçi District, Saraçlar Street and its immediate surroundings, Macedonia Tower, and Üç Şerefeli Mosque were shown to 97 users (Figure 2).

In determining the sample size of the study, a 90% confidence level and an 8% margin of error were statistically targeted, establishing the required sample size as 105 (1). Following the data collection process, a rigorous data screening procedure was conducted to preserve the reliability of the analyses and the quality of the dataset. During this verification phase, incomplete forms, those containing inconsistent responses, or otherwise improperly filled questionnaires were discarded to avoid compromising the study's validity. Consequently, a total of 97 valid user forms, obtained after the elimination of erroneous surveys, were included in the final analyses. This resulting sample size fully satisfies the academic threshold necessary for the representativeness of the statistical analyses and their scientific reliability.

$$n = \frac{t^2 q p}{d^2} \quad (1)$$

n: The number of individuals to be included in the sample (sample size)
t: The critical value for a 90% confidence level according to the t-table (t=1.645)
p-q: Population variance; p=0.50 ve q=0.50 (q = 1-p)
d: Sampling error / margin of error (d=0.08)

The 97 participants who conducted the visual assessments in the study were selected using a simple random sampling method. Because the evaluations were based on standardized photographs (visual stimuli) rather than in-situ experiences, whether the participants consisted of local residents or tourists, or whether they had prior spatial experience (familiarity) with the area, was not considered as a selection criterion. Through this methodological approach, potential biases arising from place attachment were minimized. This ensured that the pure 'human visual and psychophysical response' to the urban fabric was measured as objectively as possible.

To ensure the theoretical validity and reliability of the psychophysical model employed in this study, the 10 parameters used to evaluate visual quality were systematically derived from the literature. Table 1 presents the theoretical definitions and scope of each parameter, along with their foundational references in environmental psychology and urban design. As a result of the integration of the visual quality parameters revealed in the previous studies with the study area, the following parameters have emerged: Landscape aesthetic and historical texture, Presence of objects belonging to the culture of the place, Presence of the elements that distort the texture, Color harmony, Focus image/dominant aspect, Degree of naturalness, Maintenance, Complexity/regularity, Sense of safety, and Excitement/mystery.

Table 1. Theoretical definitions, scope, and supporting literature of the parameters used in the visual quality assessment

Parameters	Theoretical Definition and Scope in Literature	Key References/Supporting National References
1. Landscape aesthetic and historical texture	The integration of historical identity and visual composition in historic centers; assessing townscape character and contextual compatibility.	Cullen, 1961; Rapoport, 1990/Aytaş & Uzun, 2015; Kiper & Cengiz, 2016
2. Presence of objects belonging to the culture of the place	Cultural expression through distinct tangible assets, religious/social artifacts, and traditional architectural elements that define local identity.	Rapoport, 1990; Phetsuriya & Heath, 2023/Çelik & Açiksöz, 2014; Kiper & Cengiz, 2016
3. Presence of the elements that distort the texture	Visual degradation indicators, disruptive signage, inappropriate modern interventions, or structural decay that reduce visual quality indices.	Vallebuena & Lee, 2023/Aytaş & Uzun, 2015; Çakçı & Çelem, 2009
4. Color harmony	The aesthetic cohesion, chromatic balance, and visual unity between the natural and built components of the historic urban fabric.	Zube et al., 1982/Çelik & Açiksöz, 2014; Kiper et al., 2017
5. Focus image/dominant aspect	The presence of strong focal points, visual anchors, or monumental landmarks that guide human orientation and structural legibility.	Lynch, 1960; Cullen, 1961/Çakçı & Çelem, 2009; Benliay & Soydan, 2015
6. Degree of naturalness	The perceptual weight and presence of organic, biological, or green elements within the built environment.	Kaplan & Kaplan, 1989/Caf & Yılmaz, 2014; Aytaş & Uzun, 2015; Benliay & Soydan, 2015
7. Maintenance	Perceived stewardship, physical care, and cleanliness of the space, which directly influences user preference and appreciation.	Daniel & Boster, 1976; Zube et al., 1982/Çakçı & Çelem, 2009; Aytaş & Uzun, 2015
8. Complexity/regularity	The balance between spatial order (regularity) and cognitive richness (complexity); preventing visual boredom vs. chaos.	Kaplan & Kaplan, 1989/Çakçı & Çelem, 2009; Aytaş & Uzun, 2015; Benliay & Soydan, 2015
9. Sense of safety	Environmental characteristics (e.g., visibility, open vistas, absence of hidden traps) that foster psychological comfort and security.	Appleton, 1975/Caf & Yılmaz, 2014; Aytaş & Uzun, 2015; Kiper & Cengiz, 2016
10. Excitement/mystery	The degree to which an urban space evokes curiosity, invites exploration, and promises new visual information around the corner.	Kaplan & Kaplan, 1989/Çakçı & Çelem, 2009; Caf & Yılmaz, 2014; Benliay & Soydan, 2015

These parameters were evaluated using a 5-point Likert system. The responses were processed using an SPSS program and visual quality scores of the photographs were obtained. These scores were classified and “very poor”, “poor”, “average”, “good” and “very good” regions were determined on the map in terms of visual quality. Regression analyses were performed between the visual quality scores and parameters to determine how much the parameters influence the visual quality. In addition, users were asked to rate their level of

admiration for each photo; the relationship between the visual scores and the admiration level was examined by correlation analysis.

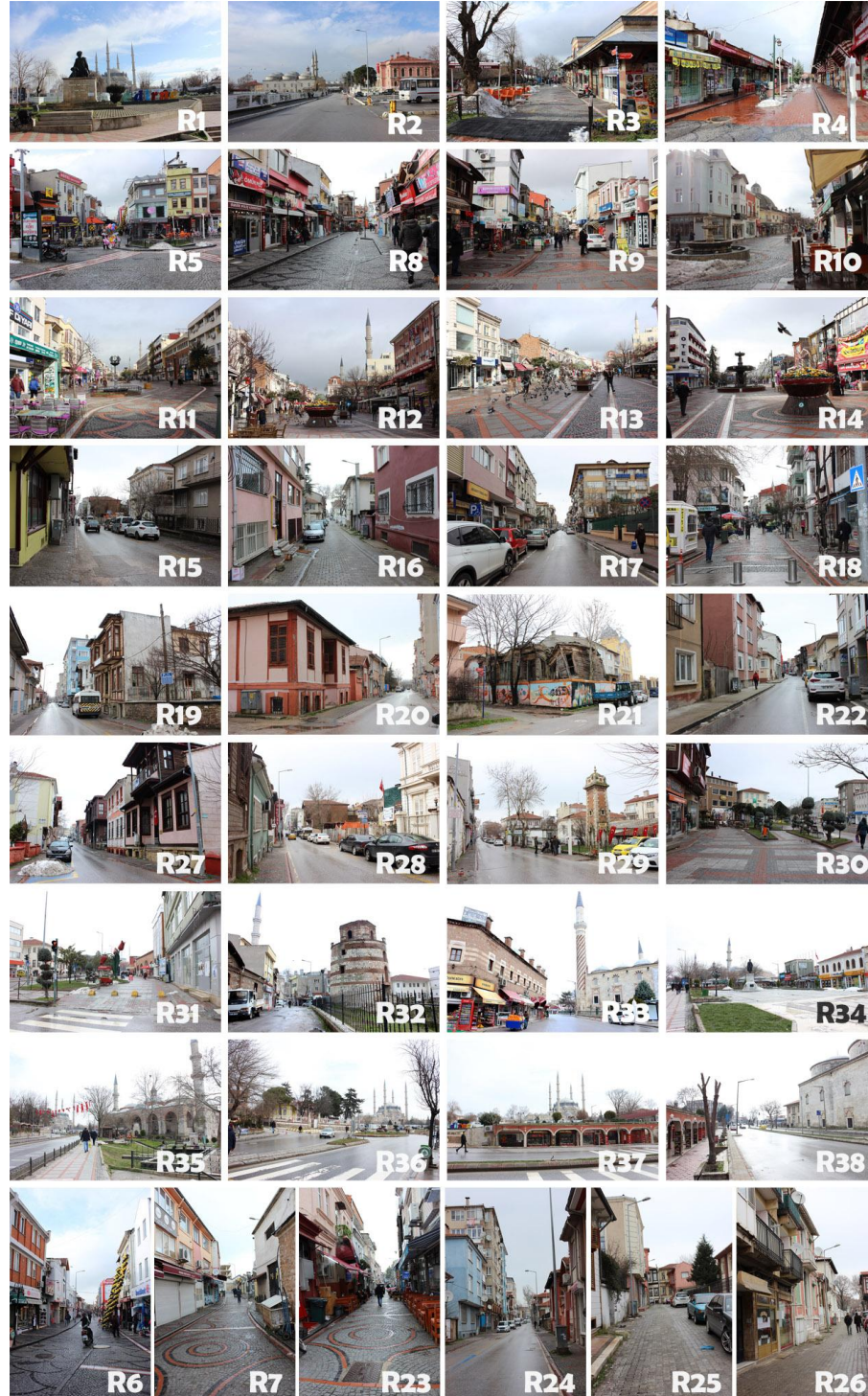


Figure 2. Photos analyzed/evaluated

RESULTS AND DISCUSSION

To evaluate the reliability of the parameters that were asked to the users to determine the visual quality, Cronbach's Alpha value, a reliability coefficient, was determined. The value of the coefficient is 0.817, which indicates that the scale is highly reliable. In addition, the Kendall Compliance Coefficient (w) value used to

evaluate the compatibility among users was determined. The value for this coefficient is 0.70 showing a harmony between the judgments.

Visual quality scores were established by scoring the photographs that constitute the material of the study according to the quality parameters. According to the scores given by the users, the highest visual quality score is given for photograph 35 (R35- 3.66) and the lowest quality score is given for photograph 22 (R22 - 2.07) (Figure 3). The classification of the regions visible in the photographs according to visual quality scores is given in Figure 3. Regions containing poor- average -good classes emerged and were processed on the map accordingly (Figure 4).

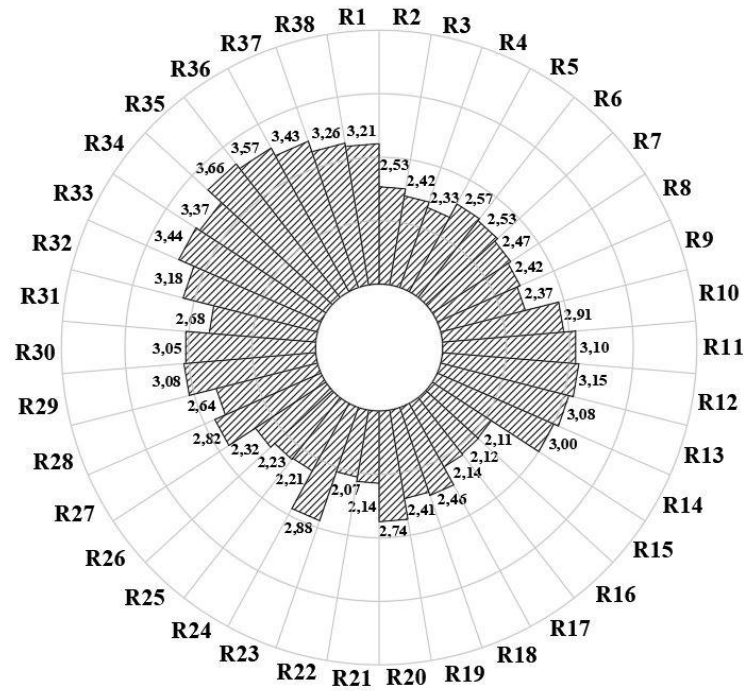


Figure 3. Distribution of visual quality scores obtained by the participants to the visual quality parameters according to the photographs

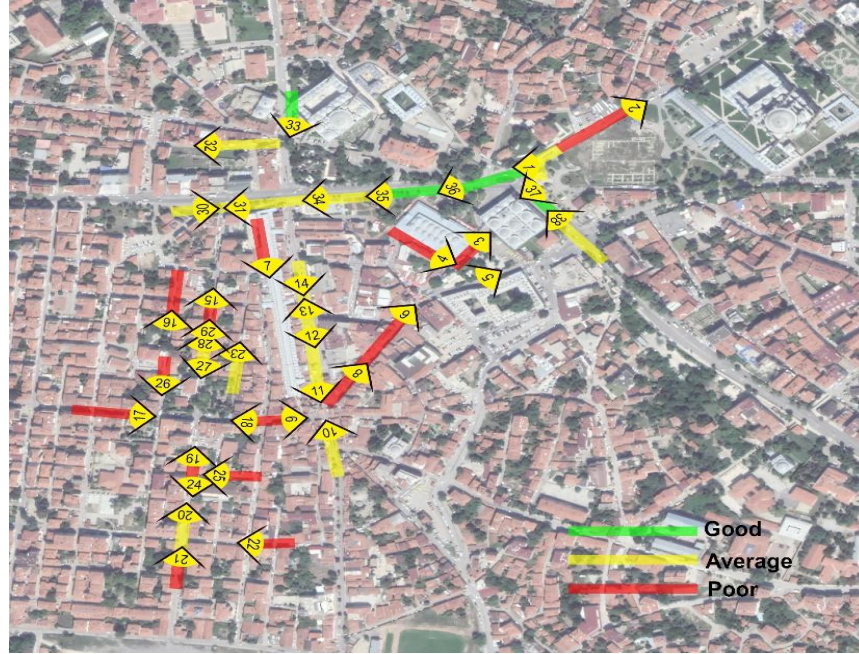


Figure 4. Classification of selected regions according to visual quality scores

Scores were compared with quality parameters to determine the lowest and highest scores for each photo. According to the scores given to the photographs in terms of the visual quality parameters, photograph 36 (R36) has the highest value in terms of “Focus image/dominant aspect” (4.41) and photograph 21 (R21) has the lowest value (1.56) in terms of “Maintenance” (Figure 5).

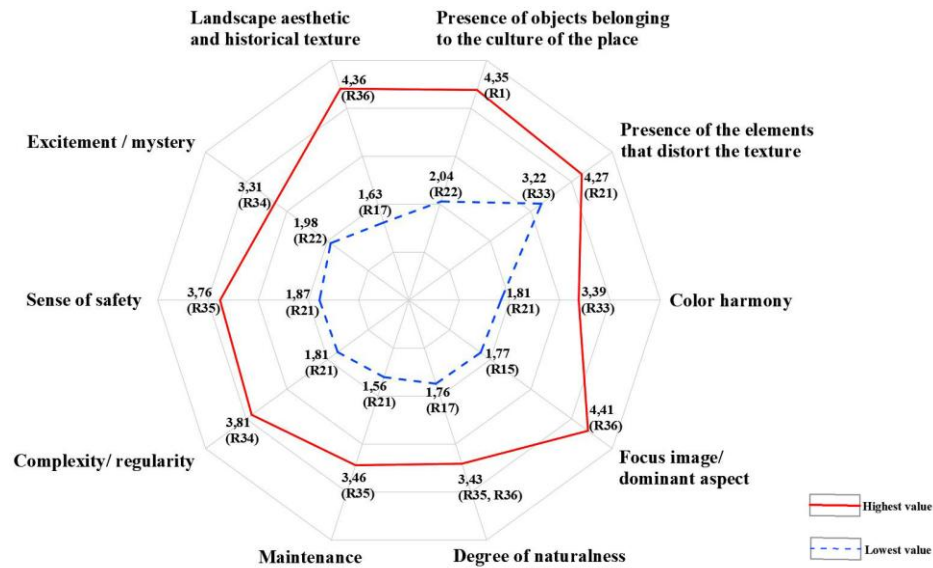


Figure 5. Distribution of visual quality parameter means according to photographs

The maximum and minimum visual quality scores for all 10 evaluation parameters, systematically calculated across the visual inventory, are visually summarized in the radar chart below (Figure 5). When these values are categorized by their specific historical zones, a clear spatial contrast emerges:

- The Highest Visual Performance: Monumental historical zones, particularly the Selimiye Mosque and Square area, consistently captured the highest values. This zone achieved peak performance in Focus image/dominant aspect (4.41 via R36), Landscape aesthetic and historical texture (4.36 via R36), Presence of objects belonging to the culture of the place (4.35 via R1), and Maintenance (3.43 via R35). Additionally, the Atatürk Monument and its environs (R34) dominated the structural parameters, yielding the highest scores for Complexity/regularity (3.81) and Excitement/mystery (3.31).

- The Lowest Visual Performance: Conversely, the lowest thresholds of visual quality were heavily concentrated in the degraded urban fabric of the Kaleiçi District. Photographs from this area (predominantly R21 and R17) fell to critical minimums in Maintenance (1.56), Landscape aesthetic and historical texture (1.63), Degree of naturalness (1.76), and Sense of safety (1.87). Kaleiçi also exhibited the highest degradation indicators, registering the most negative impact under the Presence of elements that distort the texture parameter (4.27 via R21). This clear-cut polarization demonstrates that the 10 criteria successfully categorize Edirne's historical center into distinct, homogeneous visual quality zones rather than presenting a scattered distribution.

It is observed in this study that the photographs receiving high scores have features such as naturalness and the presence of green space ($m=3.43$), cultural structure ($m=4.35$), legibility ($m=3.81$), and landscape aesthetics ($m=4.36$). These findings are consistent with recent studies emphasizing that greenery, openness, perceived character, and the presence of landmark structures are key indicators of visual quality in urban settings (Gönül & Durak, 2025). On the other hand, the areas with low-scoring photographs are neglected ($m=1.56$), and their natural structure ($m=1.76$) and historical texture ($m=1.63$) are degraded. This is in line with the findings of Düzgüneş and Demirel (2015), who concluded that as the positive effects of visual landscape quality increase, those of man-made degradation decrease. Such visual deterioration has been increasingly recognized as a measurable phenomenon; studies employing image-based analysis to monitor facade degradation and inappropriate urban interventions confirm that these factors negatively affect urban visual quality indices (Vallebuena & Lee, 2023).

The sense of safety, which is the most influential parameter of visual quality estimation in this study, yielded the lowest value in the Kaleiçi region ($m=2.64$) and the highest in Selimiye Mosque Square ($m=3.26$). Demolished and neglected buildings in the Kaleiçi region, insufficiently wide pedestrian roads for safe walking, and inadequate lighting in some areas can be considered among the reasons for the low value of this parameter. This finding aligns with broader research indicating that walkability, spatial openness, and the overall condition of the streetscape are closely linked to users' visual quality perception and sense of security (Szczepańska & Pietrzyk, 2020; Gönül & Durak, 2025).

The images with high landscape aesthetic scores and the presence of objects belonging to the culture of place showed consistently high values for the Selimiye Mosque ($m=4.01$ and $m=3.95$), Eski Mosque Square ($m=3.92$ and $m=3.95$), Macedonia Tower ($m=3.87$ and $m=4.07$), and Üç Şerefeli Mosque ($m=4.14$ and $m=3.74$). In all these images, culturally valuable buildings are present, and the historical texture of these buildings is preserved. These results are consistent with Aytaş and Uzun (2015) and Benliay and Soydan (2015), who showed that historical factors have a positive influence on the admiration level. Moreover, recent Townscape Character Assessment studies confirm that cultural expression and the interaction between religious/cultural spaces and urban identity are fundamental determinants of visual quality in historic cities (Phetsuriya & Heath, 2023; Loakaewnoo, 2024).

The photographs of the Selimiye Mosque and its surrounding area, which received the highest scores in terms of naturalness ($m=3.12$) and maintenance ($m=3.28$), are also the ones with the highest overall visual quality score. Likewise, Kaleiçi, which is the lowest scorer in terms of naturalness ($m=2.22$), exhibits impaired natural texture, and its visual score is the lowest in the neglected areas. Complexity/regularity is another parameter affecting the visual quality score significantly. The image of the Atatürk Monument and its environs was determined as the most regular area ($m=3.81$). The absence of high-rise buildings, openness and legibility, and the harmony of plant and structural elements in this area are features affecting this parameter. These findings support Çakıcı and Çelem (2009) and Kiper et al. (2017), who reported that non-complex images with a high level of legibility are preferred.

Regression analysis was performed to determine the effects of visual quality scores on parameters. The regression analysis between the visual quality score and the parameters revealed that all the parameters have a significant relationship with the visual quality score ($p < 0.01$). Accordingly, the increase or decrease in any of the parameter values will influence the visual quality score (Table 2).

The Multiple Linear Regression model, established to test the predictive effect of ten independent criteria on overall visual quality, was found to be highly statistically significant ($F(10, 3675) = 42885.42$; $p < 0.01$). According to the model summary findings, the independent variables included in the model account for 99.2% of the total variance in the perception of overall visual quality ($R^2 = 0.992$). The remaining unexplained error margin is exceptionally low (Standard Error = 0.060), thereby confirming that the established model possesses a robust predictive capacity.

Among the parameters, 'Excitement/mystery' influenced the visual quality scores the most ($\beta = 0.188$). It is closely followed by the Presence of objects belonging to the culture of the place ($\beta = 0.185$) and Sense of safety ($\beta = 0.184$). Conversely, the Presence of the elements that distort the texture has a significant negative impact on visual quality ($\beta = -0.155$) (Table 2).

Table 2. Significance of the regression model between visual quality score and parameters (ANOVA)

Model	Coefficients ^a		Standardized Coefficients	t	p
	Unstandardized Coefficients				
	β	Std. Error			
Constant (α)	0.548	0.007		84.207	0.000*
Landscape aesthetic and historical texture	0.093	0.001	0.181	85.891	0.000*
Presence of objects belonging to the culture of the place	0.106	0.001	0.185	96.032	0.000*
Presence of the elements that distort the texture	-0.093	0.001	-0.155	-94.645	0.000*
Color harmony	0.089	0.001	0.140	72.503	0.000*
Focus image/dominant aspect	0.093	0.001	0.181	88.937	0.000*
Degree of naturalness	0.089	0.001	0.148	73.829	0.000*
Maintenance	0.093	0.001	0.148	82.780	0.000*
Complexity/regularity	0.115	0.001	0.173	81.897	0.000*
Sense of safety	0.118	0.001	0.184	85.951	0.000*
Excitement/mystery	0.114	0.001	0.188	104.789	0.000*

* $p < 0.01$

a. Dependent Variable: Visual quality scores

At the last stage of the study, the level of admiration of the participants for each photo were measured. Correlation analysis is used to reveal the degree of relationship between visual quality parameters and level of admiration for the photographs in this study (Table 3). Interestingly, all parameters were found to have a significant relationship with the "Admiration level" ($p < 0.01$).

Table 3. The results of a simple correlation analysis of the relationship between visual scores and likelihood status

		Landscape aesthetic and historical texture	Presence of objects belonging to the culture of the place	Presence of the elements that distort the texture	Color harmony	Focus image/ dominant aspect	Degree of naturalness	Maintenance	Complexity/ regularity	Sense of safety	Excitement / mystery
Level of Admiration	Pearson Correlation	0.230**	0.126**	0.225**	0.143**	0.195**	0.113**	0.562**	0.640**	0.665**	0.579**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	N	3686	3686	3686	3686	3686	3686	3686	3686	3686	3686
** Correlation is significant at the 0.01 level (2-tailed).											

When the regression and correlation findings obtained from Table 1 and Table 2 are examined holistically, it is clearly observed that the fundamental factors determining users' spatial admiration levels and visual quality perception in historical city centers are the "Sense of safety," "Complexity/regularity," and "Excitement/mystery."

According to the regression model, the "Sense of safety," which is one of the most influential parameters on visual quality, is also the variable exhibiting the highest positive correlation ($r=0.665$) with user admiration. In historical urban textures (particularly in areas like the Kaleiçi district, characterized by narrow streets and occasionally derelict structures), inadequate lighting and insufficient pedestrian pathways engender a feeling of insecurity. This situation causes the visual quality to be scored poorly by the users, even if the area possesses high historical and aesthetic value. This finding strongly aligns with current literature indicating that intra-urban walkability, spatial openness, and safety in street textures are directly associated with visual quality perception (Szczepańska & Pietrzyk, 2020; Gönül & Durak, 2025).

Another parameter demonstrating a high impact on user admiration was identified as "Complexity/regularity" ($r=0.640$). In historical environments, clear spatial legibility and visual harmony between architectural and vegetative elements facilitate the users' perception of the space. The higher preference for uncomplicated, legible areas lacking high-rise buildings (such as the Atatürk Monument and its surroundings) supports the findings of Çakıcı and Çelem (2009) and Kiper et al. (2017).

On the other hand, one of the most striking findings of the study is that although the parameters of "Landscape aesthetics and historical texture" and the "Presence of cultural objects" significantly affect visual quality in the regression model, they exhibit a relatively low correlation with user admiration ($r=0.230$ and $r=0.126$, respectively). This demonstrates that even if users find a historical structure (e.g., a traditional Edirne house) culturally valuable, they do not holistically "admire" the area if it lacks adequate "Maintenance" and a "Sense of

safety." Therefore, the sustainability of visual quality in historical city centers depends not only on the presence of cultural heritage but also on the improvement of the maintenance conditions of this heritage and the prevention of visual degradation (Vallebuena & Lee, 2023).

Consequently, the correlation analyses indicate that spatial configurations triggering the user's sense of discovery, such as "Excitement and mystery" ($r=0.579$), when integrated with sufficient "Maintenance" ($r=0.562$) and "Safety," will maximize the tourism potential and recreational value of Edirne's historical city center.

CONCLUSION

Visual landscape quality assessment studies add aesthetic value to urban and rural areas, influence environmental protection and sustainability, increase the quality of life for inhabitants, and lead to overall tourism and economic development of a region. In historic city centers in particular, visual quality is not limited to architectural aesthetics; it is deeply intertwined with urban texture, socio-cultural values, and the continuity of spatial identity (Phetsuriya & Heath, 2023; Loakaewnoo, 2023). Preserving cultural assets and ensuring sustainable development is presently a critical issue, as visual degradation—including facade deterioration, neglected structures, and disruptive interventions—can significantly diminish the perceived character and quality of historic urban environments (Vallebuena & Lee, 2023; Gönül & Durak, 2025).

Edirne is one of the most important cultural assets of Türkiye, with its thousands of years of historical texture and rich built heritage. The international and national significance of the city is formally institutionalized; notably, the Selimiye Mosque and its Social Complex have been inscribed on the UNESCO World Heritage List since 2011, and Edirne is a prominent, founding member of the Union of Historical Towns in Türkiye. It contributes to the city's economy by increasing tourism potential through these values. Unlike many visual quality studies carried out in natural or rural settings, the material of this study is a designated world heritage destination and a protected historical city center.

With this study, which aims to reveal the visual landscape quality, the areas to be protected and improved within this high-status cultural fabric were specified. Furthermore, the empirical outcomes of this research strongly align with recent visual quality and user perception studies conducted across historical and protected urban landscapes in Türkiye. Similar to multi-site user satisfaction and visual aesthetic analyses performed in the historic core of Konya (Akay, 2025), the monumental and tourist-heavy destinations of Bursa (Polat Üzümcü et al., 2016), and the culturally significant coastal heritage context of Amasra (Çorbacı & Oğuztürk, 2019), it is consistently demonstrated that maintaining structural harmony and addressing visual degradation are universal prerequisites for enhancing tourist satisfaction and preserving local identity in Turkish historic centers.

The visual landscape quality is the main component of the natural environment in the context of tourism and affects the overall quality of the touristic experience (Clay & Daniel, 2000; Kiroğlu, 2007; Özgeriş, 2014). Multi-parametric assessment approaches adopted for historic urban centers—integrating physical–environmental characteristics, visual–aesthetic indicators, and socio-psychological factors—further underscore that visual quality directly contributes to tourism attractiveness and sustainable urban management (Shehata, 2022; Gönül & Durak, 2025). Therefore, increasing the quality of the visual landscape has the potential to significantly enhance Edirne's tourism capacity.

The findings of this study reveal a critical dichotomy between the cognitive evaluation of visual quality and the emotional response of spatial admiration in historical environments. While the mere presence of cultural heritage and historical architecture is sufficient to elevate objective visual quality scores, it falls short of guaranteeing holistic user admiration unless supported by fundamental psychological and physical comfort parameters, namely safety, maintenance, and spatial legibility. This emphasizes that historical urban conservation should transcend traditional, object-oriented restoration approaches. Instead, an experience-oriented landscape strategy must be adopted. By eliminating visual clutter that distorts the historical texture, improving pedestrian infrastructure to foster a definitive sense of safety, and preserving the organic, mysterious spatial sequences of the streets, historical city centers can be transformed from merely observed heritage sites into highly admired, sustainable, and livable urban landscapes.

Classifying the visual quality scores in the selected regions revealed that most of the study area has average or poor visual quality. As the visual quality score is low in unnatural, neglected, and historically damaged areas, restoring them in accordance with their original character will contribute to urban aesthetics by increasing the value of the visual landscape. In this regard, developing visual quality indices—combining indicators such as streetscape texture harmony, facade condition, greenery, spatial openness, and panoramic views—can provide local administrators with evidence-based tools for restoration and planning decisions (Vallebuena & Lee, 2023; Gönül & Durak, 2025). Furthermore, the integration of community participation into such assessment processes is essential to ensure that the social and cultural values embedded in the historic landscape are preserved alongside its physical qualities (Phetsuriya & Heath, 2023). This contribution will not only improve the quality of life for citizens but will also promote the social and cultural development of the city, support informed policy-making for urban conservation, and increase Edirne's tourism potential.

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