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Evaluation of Green Areas with Design Pattern Language Principles*

Tasarım Desen Dili Ana İkeler ile Yeşil Alanların Değerlendirmesi

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ABSTRACT

The pattern language has emerged from the transformation of some meaningful and understandable styles and phenomena into the concept of design in landscape architecture. The term pattern language has had a very comprehensive value and has been evaluated from various aspects. Even though landscape design styles and design languages differ in various periods, cultures and geographies, it has shown a general framework for the concept of design by symbolizing traditional beliefs, socio-cultural values, climatic and topographic conditions that generally contain meaning. In this context, the use of pattern languages in the design of understandable, readable and semantic areas and the evaluation of various planning methods by analyzing the fiction of these phenomena in different periods are foreseen in the reading of all principles.

The aim of this study is to classify the pattern language and phenomena used in the analyzed sample park, to find the criteria that make them successful in terms of function and aesthetics, and to classify these criteria into various categories to form a term and conceptual framework in landscape designs. In order to scale and evaluate the possibility of using these criteria in new park designs, it is also aimed to classify the cases in a general framework and to design a sample park.

Keywords: Pattern Language, Principle, Landscape Architecture

ÖZET

Desen dili, peyzaj mimarlığında bir takım anlamlı ve anlaşılabilir üsluplar ve olguların tasarım kavramına dönüşmesinden ortaya çıkmıştır. Desen dili terimi çok kapsamlı bir değere sahip olmuş ve çeşitli yönler ile değerlendirilmiştir. Peyzaj tasarım üslupları ve desen dilleri çeşitli dönem, kültür ve coğrafyalarda farklılık gösterse bile genelde anlam içeren geleneksel inançları, sosyo- kültürel değerleri, iklimsel ve topoğrafik koşulları sembolize ederek, tasarım kavramı için genel bir çerçeve sergilemiştir. Bu bağlamda desen dilleri anlaşılabilir, okunabilir ve anlamsal alanların tasarımında kullanılması ve farklı dönemlerde bu olguların kurgusunu analiz ederek çeşitli planlama yöntemlerinin değerlendirilmesi tüm prensiplerin okunuşlarında ön görülmüştür.

Bu çalışmanın amacı, analiz edilen örnek parkta kullanılan desen dili ve olguların sınıflandırılması, fonksiyon ve estetik açısından onları başarılı kılan kriterlerin bulunması ve söz konusu kriterlerin çeşitli kategorilere sınıflandırılarak, peyzaj tasarımlarında bir terim ve kavramsal çerçeve oluşturulması gösterilmiştir.

Anahtar Kelimeler: Desen Dili, Prensip, Peyzaj Mimarlığı

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INTRODUCTION

Since the beginning of civilization, the indispensable relationship between man and nature has been seen, this connection has emerged in different periods with a variety of space understanding. Due to the new urbanization in its modern period, it has led to the formation of open green areas and parks in cities (Lokocz et al., 2011). Landscape architecture, as in every branch of science, consists of clear principles and these facts generally ensured that the disciplines are within a defined and understandable framework. Parks have been developed in this context and have created a distinctive pattern language for themselves in different periods over time (Nasar, 1988).

Landscape design language has provided the formation of a general conceptual framework by using design principles together with landscape areas' own phenomena or culture, beliefs, values and metaphors. In addition, landscapes not only have metaphorical and metaphysical meanings, but also evaluate real cultural, traditional and rational meanings and reveal usable, understandable and accessible styles, insights and facts, the purpose of which is the formation of a general principle and pattern language for planning without breaking the communication between nature and people (Thayer, 1989; Kaplan and Kaplan, 1989).

The phenomena used in landscape areas have undergone semantic and physical developments and transformations throughout history (İsmailoğlu and Kulak Torun, 2022). No matter how much diversity and difference these developments cause, pattern languages have reflected the feelings, beliefs, traditions and thoughts of societies in different dimensions and scales. In order to convey these traditions and social feelings, a style, movement and pattern language of the landscape was formed by using criteria and principles in general (Law and Zube, 2007).

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Since landscapes are directly related to human cultures, they are reflected in the traditional artworks of the people (such as embroidery on carpets, rugs and fabrics). In this context, finding the cultural roots, examining the climatic conditions, examining the historical background of the region and the design principles have been an important and necessary factor in order to discover the meanings of the patterns. For this reason, the formation of phenomena and their use in designs are handled from different and various scientific and artistic aspects as a multidimensional factor (Alexander, 1964).

With the change of global life after the industrial revolution, people's needs, perceptions and understandings have also begun to transform. Urbanization revealed the relationship between nature and human in different dimensions and caused this relationship to separate from each other at the beginning of the modern period (Oures, 2007). However, together with climatic conditions and environmental problems, people's need and connection to nature have led to the formation of new urban parks. The design concepts and fictions used in urban parks have been designed depending on more semantic, cultural and ecological values, especially recently (Dunn et al., 1991).

Jülide Edirne (2004) in her doctoral thesis titled "design basic principles and application examples in landscape architectural design" showed that the concept and fiction are important factors in the design of landscape areas, and also defined the phenomena as the determining factor in the formation of visual organizations during planning. In general, visual expression and design language showed the emergence and development of some defined elements such as point, line, plane and color, and styles such as balance, scale, proportion, emphasis, integrity and form, whose design principles were determined (Opdam et al., 2001).

Landscape spatial evaluation and analysis of physical landscape design principles are perceived as landscape quality. It is not what is inherent in the nature of the landscape, but the way of expression of the space seen and the element that emerges from the understanding of people (Bell, 2002; Kulak Torun and İsmailoğlu, 2022). If this perception is not constructed correctly, the spatial quality and landscape quality can make the quality of the area worthless. Therefore, the language of design shows that especially the landscape quality should be based on a subjectivist paradigm from theoretical approaches (Richards, 2001).

The Meaning of Pattern Language According to Christopher Alexander

In line with the facts and theories, it is possible to make a permanent and valid assessment of the landscape quality. Also, considering the one-way criterion in landscape architecture, it seems that spatial perception and formal approaches are insufficient. It has been determined that changes in land cover and land cover will affect landscape qualities.

Principles According to Alexander (1977), holistic design understanding and a pattern on landscape areas have an effective place in the formation of a language, so their expansion and classification have been considered as an important factor for the analysis of park areas. scaled and analyzed.

The concept of close-environment related to pattern language: Designs created a holistic composition when the cities came together as parcels, and these combinations indicated the shapes of the cities (Mandelbrot, 1982). The effect of the parts on each other and the relationship of proximity and distance are considered important facts in planning. Alexander (1964), showed that the concept of design is a whole and that all elements are directly related and connected with the immediate environment in urban planning.

Form concept related to pattern language: Landscape architecture considers structures with meaning just like architecture. Alexander has classified the phenomena that make up the form as parameters that contain both visual and semantic in the general framework, and in this direction, formal approaches also regulate the general planning of the park and the close environment relationship on a large scale on the basis of macro phenomena. For this reason, according to Alexander, landscape architecture is considered as one of the determining and important principles especially in park design formations (Alexander, 1977).

Accessibility related to pattern language: The most important factor in the design of green areas is to adjust the roads and axes, taking into account the walking distances. The morphology of the land, its proximity and distance from the city also affected the accessibility phenomenon. If the accessibility to the park areas is easy, the usage density will be high and in urban green space planning, the natural structure of the residential area, the location of the spaces, the closeness and distance of meeting and gathering places and the distance of these areas to the park entrances, circulation and circulation within the area, and accessibility are the decisions that will determine has been defined. (Alexander, 1977).

The Meaning of Pattern Language According to Anne Whiston Sprin

The purpose of pattern languages is to ensure the readability of landscape areas in both nature and culture, to ensure that people are together with nature again and to create a peaceful environment in the dense city, to adapt nature and local culture to the conditions of the regional environment, to revitalize the phenomena accepted by the public, and to create patterns in landscape architecture. It is considered as one of the main reasons for the formation of language (Simitch and Warke, 2014). Defined it as a landscape beyond landscape architecture and showed that it has a function as a semantic message or message. Every tree, bush, river and rock is a part of human cultures and has historical value, giving identity to both people and designed landscapes (W.Sprin, 2000). Classifying cases as micro-phenomena by combining them with basic principles is considered one of Anne W. Sprin's important research.

Proportionality concept related to pattern language: Explained proportional approaches as an effective element in the distribution and fragmentation of a holistic landscape. The proportional approach has divided a holistic landscape area into balanced and distinct parcels in a measured way and provided functions and activities in regular dimensions depending on the design setup. The more accurately the dimensioning is calculated and the proportion between the objects is adjusted, the designs gain realistic and artistic quality (W. Sprin, 2000).

Visual perception phenomenon in the formation of design criteria: Since landscape areas are a natural object, it has shown that they have a mutual balance rather than an equal balance. Because landscape areas emerge from the holistic combination of different and various elements such as color, shape, tree, and water elements, more visual perception and value (Simonic, 2003). Form approaches in the formation of design: Sprin divided form and form into geometrical and organic two and evaluated them in the analyses. In the design of open green spaces, these concepts have been defined as an important and determining factor in the development and formation of a landscape (W. Sprin, 2000).

Modern Age and Green Spaces in Landscape Architecture

The beginning of the industrial period caused great changes in people's life and thought. Urbanization and the influx of people into cities, the establishment of factories in rural areas of cities, and therefore the decrease in the connection between man and nature, has revealed a new lifestyle (Gazvoda, 2002). Citroen Park, the most emphatic and stylistic landscape design area of the industrial period, was declared as a public green space with the industrialization of Paris and later turned into the symbol of the city as a park. This park, which is considered in this study, has been analyzed and classified with its design criteria and principles (Swanson, 1988).

MATERIAL and METHOD

Citroen park, which is known for its design idea, location decisions, design language and principled principles, was chosen from the city of Paris as an important example reflecting the modern and postmodern movement (Table 1). In addition to the park information, the literature obtained from the thinkers working on this subject and similar fields was formed from the data obtained from the sources, books and web pages, and besides, the analyzes in the fields were evaluated in line with the data used from the original sources.

Table 1: Andre Citroen park overview

Park	City	Built Year	Age	Plan of Park
Andre Citroen	Paris	1992	Modern	

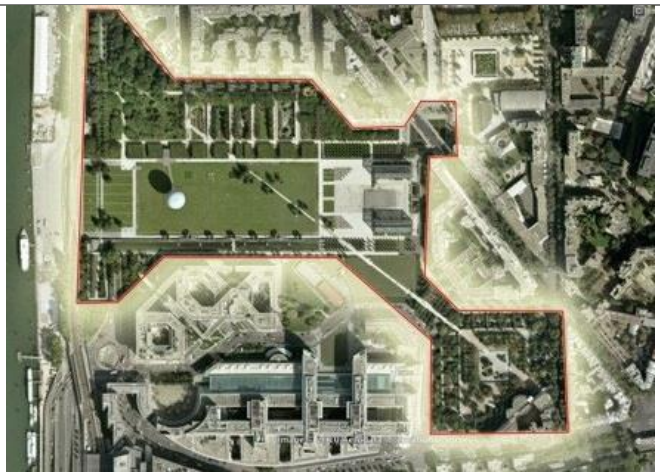
By assuming the basic design principles in landscape architecture, the general form formation characteristics of the parks were taken into account and similar examples were searched in the examination of the principles. In this context, the principles discussed by the most important theorists Christopher Alexander and Anne W. Sprin were evaluated and the phenomena that constitute the pattern language in park design were determined.

FINDINGS

Citroen park, which started from the uncontrolled industrialization and development of the city, was presented as an alternative to reducing environmental problems and the quality of urban life. Citroen park was designed instead of an old factory located in the city center, the reason for its establishment was the factory belonging to the industrial period and the removal of environmental pollution from the city, planned and specified (Figure 1). The design of the park was determined at the end of a competition and Citroen design was carried out by Allain Provost (Table 2)

With this aspect, the park has given importance to ecological and environmentally friendly values. The general setup of the park was planned on the basis of four principles, which were defined as general structure, continuity, landscape architectural design principles and harmony with nature, and in this context, the whole design concept was formed and used in different and various parts of the park (Rapoport, 1977). The viewing and vista towers, the cross roads forming a clear axis, the black-and-white area designed with the same concept and their connection with each other and their relationship with its immediate surroundings formed the design pattern and principles of the park.

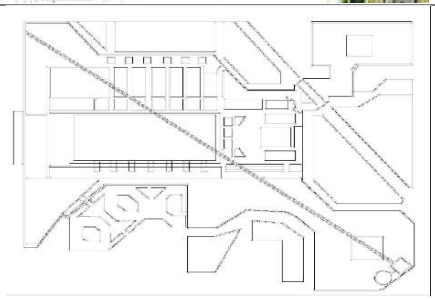
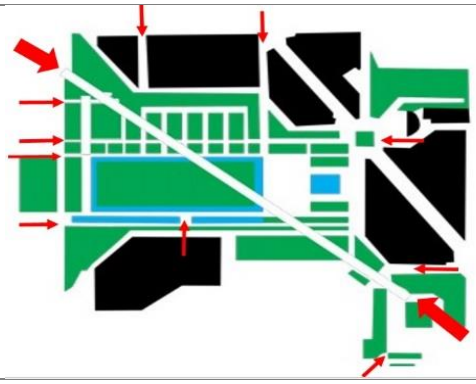
Table 2: General Information and Location of Citroen Park (Original)

Park Name	Location	Establish Year	Area	Landscape Architecture	Style Design
Andre Citroen	Paris/ France	1992	14 Ha.	Allain Provost Giles Clement	Modern
Plan	 **Figure 1:** Citroen park location (google map)				
Internet Adress	www.Pariste.net/andre-citroen-parki-parc-andre-citroen				

Evaluation of Citroen park according to Alexander pattern language thought

Based on the thought of Christopher Alexander, the macro phenomena of the Citroen park were evaluated and analyzed (Table 3). Citroen park took its name from the old factory in the same area, was designed with a modern logic as parcel and place, and was organized in harmony with its size and urban parcel, as well as its design style and its immediate surroundings. Since the park is in the middle of the city plot, its transportation is provided from various and different directions, besides, the main walking and movement axis is specified in the park with a cross road and the concept of continuity is emphasized with this road. In this park, water elements were used with various elements and water channels were specified as the secondary axis of the park (Müderrisoğlu and Demir, 2004). A very rich park and green area has been designed by using different artificial elements with different functions. The park's general setup and concept has achieved a holistic balance with its geometrical approach.

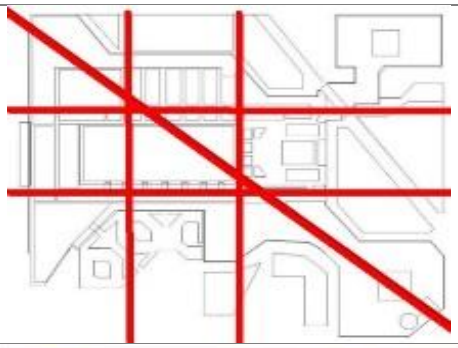
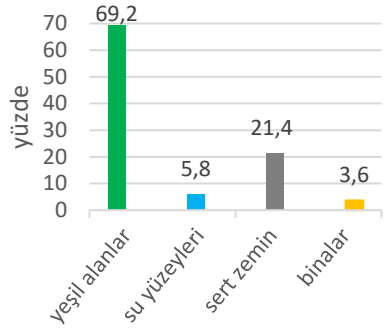
Table 3: Analysis of Citroen Park to General Criteria (Original)

Macro Olgus	Schematic Plan	Explanation
Park and Close area relationship		▪ The general lines of the park were designed in harmony with the immediate surroundings and with its regular geometry, it was arranged in a way that resembles the modern Parisian urban fabric. ▪ The park is integrated with an urban space and urban fabric and is designed more like an urban green space than a park.
General form of park		▪ The design logic is based on regular geometry and consists of distinct and defined axes depending on the modern style. ▪ Regular geometry and symmetry have led to the formation of space and each plot has created symmetrical forms within itself.
Accessibility and Circulation		▪ Since the park is within the urban fabric, it has entrances from different directions. The main circulation area of the park was formed depending on the main diagonal axis. ▪ Specified the main and secondary axes of the park, the general parcels within the park, the description of the place and the regional gardens.

Evaluation of Citroen park according to Anne W. Sprin basic design principles

Micro olgus show the design plots of the park with the characters Anne W. Sprin (Table 4). Citroen park has been designed with the logic of modern thought and has a neat and regular geometry. While the park is made up of legible axes, the diagonal road provided the main axis and continuity of the park, and also indicated the park's emphasis and activity line. The various gardens of the park have transformed this area into a rich landscape. Red, green, silver, gold, black and white gardens and the plants used in them and emphasizing the same concept have caused the spirit of space and its integration with nature. Two greenhouse structures have created a different landscape and recreation areas, and on the other hand, the watch towers called serial garden and green space have formed one of the other important points of the park (Oures et al, 2005). The forms that emerged from the distribution of various spaces in the park provided a general visual balance and defined the park as balanced. It has become an important pattern language.

Table 4. Landscape Design Principles Analysis of Citroen Park (Original)

Micro Olgus	Schematic Plan	Explanation
Direction and Line		▪ Since it has a regular and regular shape, a few axes and parts a composed of symmetry lines. ▪ Citroen park, which has a fully regular geometry, is mostly composed of rectangular fragments and proportional design.
Balance		▪ Since the park has a regular geometry, the parcels and sections are rectangular and the spaces are proportionally designed. ▪ The large rectangular grass area designed in the center of the park, as the highlight and symmetry point of the park, defined the dispersal and directing zone and created axial symmetry and visual balance.
Colour and Contrast		**Natural and Artificial Elements** / **Açıklama** / **Percentage (%)** Natural elements — water + tree + grass + ground — 75 Artificial elements — buildings + floors — 25
Intensity and Proportion		**Place Proportions in the Park** / **Alan (m^2)** / **Percentage (%)** Green spaces — 89,961 — 69.2 Water surfaces (areas) — 7,503 — 5.8 Ground and roads — 27,895 — 21.4 Buildings — 4,641 — 3.6 Total — 130,000 — 100

Citroen Park Highlights and Focal points

Due to the design setup in Citroen Park, different and various spaces are planned (Figure 2) . The cross and diagonal road, which forms the main axis of the walk and the park, and the secondary axis emerging with the water channel from the other direction (Figure 3), revealed the proportion and fragmentation of the park in general (Seeley, 2005). The watchtowers (Figure 4), the balloon area and greenhouse gardens in the center of the park (Figure 5) and various geometric gardens and linear roads (Figures 6) in the park formed the emphasis and focal points in the park. Although the park was designed by two different landscape architecture groups, it has a holistic language and a unified concept and a different area is planned to meet each space (Gisiger, 2001). For example, black and white gardens, these gardens, as another important green area, actually reflect the summary of all senses, while darker leafy plants in the black garden and in the white garden, there were light and white flowers. The garden of senses is one of the highlights in the park and a space and space has been designed for each sense. Quality and rich meeting, gathering, recreation, spending time and green spaces connected to such places have emerged as the highlight and landmark of the park.

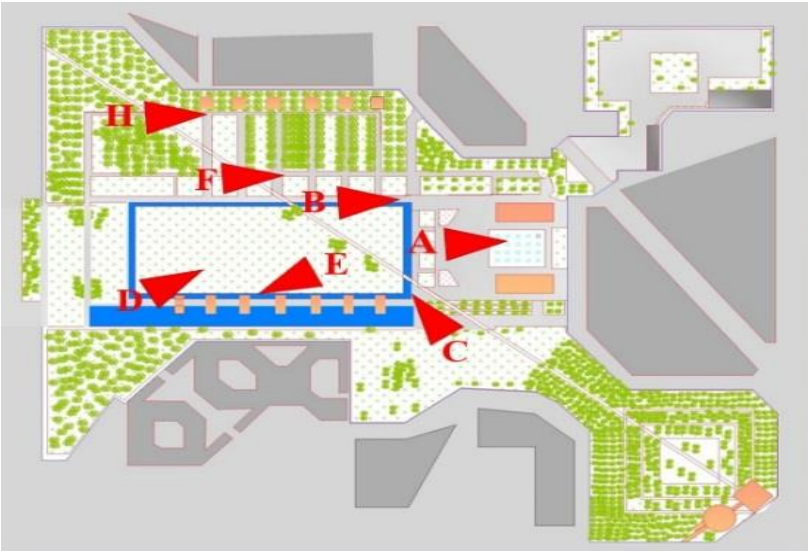


Figure 2: Citroen park focal points (Original)

A ve B direction

Figure 3,4: Watchtowers (left), Greenhouse gardens and geometric road and pool (right) (Riha, 2004)

C ve D direction

Figure 5,6: Geometric gardens (left), Linear paths (right) (Original)

RESULT

Landscape architecture is generally expressed as a communication element with facts, principles and traditional values. Criteria, which have both functional and formal functions, seem to be important factors in the formation of aesthetic and visual perception, in addition, parks designed with clear facts have more usable, legible, understandable and semantic contents, and therefore they have been very connected with people and become timeless. Such designs created a trend and style for themselves in different periods and defined a pattern language in park designs as a pattern (Table 5).

Table 5: Results and Evaluations Obtained from Macro Olgus

Macro Olgus / Park	General Form	Close area Relationship	Visual Balance	Accessibility and Circulation
Citroen Park	Designed with the logic of the modern era, the park has a regular geometry form..	Formal approach and linear lines seem to be harmonious and holistic with its immediate surroundings.	Due to the regular shape and linear axes, and on the other hand various green gardens ensured a balanced distribution.	The prominent axis in the park provided the main road and access and created legible,understandable and easy circulation and circulation throughout the park.

The analyzed and stylistic cases were applied considering Citroen Park. While the four main titles obtained from macro phenomena ensure that the city parks are in a holistic framework with their immediate surroundings, form and formal approaches have emerged based on certain principles, trends and concepts.

Park designs seem to be subject to the same conditions as they are part of landscape areas, and in general, trend, cultural values and traditional conditions have been the determining factors in park planning. Form and form, density and proportion, balance, direction and line, as well as ecological values and common phenomena of today, are evaluated and indicated (Table 6).

Table 6: Results and Evaluations Obtained from Micro Olgus

Micro Olgus / Park	Direction and Line	Balance	Color and Contrast	Intensity and Proportion
Citroen park	Straight lines and prominent axes are reflected in this park as the accent style of the modern period.	An equal distribution of functions and forms due to circular shapes, in this context, a balanced and holistic design has emerged.	The combination of artificial and natural elements caused a mixture of colors and created a balanced contract between the colors.	From the geometrical approach due to proportional looks like a plan.

While macro phenomena dealt with the park designs throughout the city, micro phenomena generally determined the interior design concepts and rules of the park. Parks, as important green areas of cities, should be designed in an ecological framework because they increase the thermal comfort and quality of life of cities.

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