ISSN: 2008-5079 / EISSN: 2538-2365
DOI: 10.22034/AAUD.2024.469842.2905

Definition of a Mechanism for Measuring Integrity in Historical Urban Landscapes Based on the Concepts of Wholeness and Evolution; Case Study: Historical Urban Landscape of Boshruyeh

Mojtaba Kavian[a*]- Mohammad Masoud[b]- Mohammadhassan Talebian[c]

[a] Assistant Professor of Restoration of Historical Buildings, Faculty of Architecture and Urban Planning, Hakim Sabzevari University, Sabzevar, Iran (Corresponding Author).

[b] Professor of Urban Planning, Faculty of Architecture and Urban Planning, University of Art, Isfahan, Iran.

[c] Associate Professor of Conservation and Restoration of Historical Monuments, Faculty of Fine Arts, University of Tehran, Iran.

Received 12 October 2024; Revised 28 November 2024; Accepted 09 December 2024; Available Online 22 September 2025

ABSTRACT

This article, after reviewing conceptual diagrams and models of the components of integrity from previous scientific papers and studies, selects the most appropriate model and, considering the evolutionary dimension of landscapes, proposes a new conceptual framework for quantitatively defining their integrity levels. The author conceptualizes integrity as a stable condition within a landscape that has completed its formation phases. In contrast, the absence of integrity is considered the state of an unfinished project. Using the concepts of wholeness and incompleteness, the study identifies which states in the conceptual model indicate an incomplete condition in landscape formation and which changes intensify it. The fundamental basis of this research method is logical reasoning and the alignment of a conceptual model's behavior with geometric rules. The perspective proposed at the end of the article for the geometric behavior of the conceptual model is that unbalanced development and one-dimensional growth of any landscape feature, when not accompanied by other dimensions and attributes, can threaten the integrity of the environment and the landscape. The article's conclusions include testing the model against two propositions from the SWOT table in studies of the special plan for the historical city of Boshruyeh, where the author uses the reasoning developed in the article to examine the conceptual model's capacity to represent these propositions. At the end of the article, a vision is presented for transforming this conceptual approach into scientific metrics within a Geographic Information System (GIS). In this vision, the conceptual model for measuring landscape integrity is displayed as indices alongside the interface of software or mapping tools. These indices, shaped by the current conceptual model of this study, dynamically adjust as the selected area expands or contracts, in accordance with the collected morphological and descriptive data from the environment.

Keywords: Integrity Measurement, Historical Urban Landscape, Conceptual Development, Wholeness and Incompleteness, Evolution.

* E_mail: mojkavian@gmail.com

1. INTRODUCTION

Historical urban fabrics, as living documents and tangible manifestations of a society's collective memory, are inevitably exposed to changes due to the inherent dynamism of urban life, regardless of their level of significance—from the buffer zone of a single prominent monument to the entire area of cities inscribed on the World Heritage List. These changes, which may stem from new functional requirements, socio-economic transformations, or technological advancements, constitute an inseparable part of cities' life cycles. In response to the inevitability of transformation, conventional legal frameworks and preservation guidelines have been established to safeguard the authenticity and integrity of this valuable heritage. However, practical experience in urban heritage conservation clearly shows that, even when these formal regulations are meticulously observed, a subtle yet decisive change occurs, gradually weakening the community's spiritual and emotional connection to the site and intensifying the process of alienation.

This creeping vulnerability is not limited to significant, conspicuous interventions; it also manifests in seemingly harmless, permissible actions. Standard restoration without understanding the spirit of the place and its surrounding fabric, authorized but incompatible changes in land use, and minor yet repeated physical interventions that ultimately disrupt the visual and structural cohesion of the ensemble—all constitute such factors. Although these interventions may initially appear undetectable based on conventional checklists, over the long term, and through repetition, they contribute to the gradual erosion of spatial values and a disconnection from historical identity.

Therefore, the main issue in urban heritage conservation is no longer merely about saving the physical fabric from direct destruction. It is about protecting the "integrity of the historical urban landscape" as a dynamic, multi-layered, and meaningful whole, resulting from the complex interaction of physical, functional, perceptual, and social factors. This perspective elevates the field of conservation from a purely physical and historical concern to a comprehensive, dynamic, and cross-disciplinary issue that requires the development of new theoretical frameworks and practical tools. Frameworks are needed that, while accepting the reality of change and transformation, can identify, measure, and manage alterations that, despite their seemingly low risk, pose a serious threat to the internal cohesion and sustainable identity of the historical landscape. This article, recognizing this necessity, seeks to expand the conceptual literature and provide a theoretical foundation for developing such an assessment system.

1.1. Problem Statement

It should be seen what factors cause the reduction of values in the historical urban fabric by modern interventions (even in compliance with existing rules) that cannot be measured with current tools? And what are the characteristics of the landscapes that are taken from these fabrics that the various changes that led to their formation have preserved? While the rules and methods defined for their legal protection cannot prevent the effects of deterioration caused by uncoordinated development and hastily implemented interventions. In any case, in the absence of a scientific system for evaluating this type of knowledge, expertise, emotions, or tolerant management, each can create problems in its own way and increase additional rigors in the spaces between conservation and development. The conservation manager, with a simple view, may make choices to preserve objects based on their intrinsic characteristics and their degree of uniqueness. But the process of maintaining and restoring those examples cannot prevent the deterioration that is caused by new developments. What factors cause this gradual deterioration and decay?

1.2. Objectives

The main intention of this article is to develop a conceptual framework for discussing the integrity of historic urban landscapes and the creation of the scientific infrastructure necessary to express it. The main goal of this work is to implement a measurement system. A theoretical and intellectual system that can, while taking into account the gradual changes that occur in all landscapes, recognize its internal coherence that is supposed to remain intact beyond the changes of time, and help planners, by setting policies, to continuously move towards implementing and controlling aspects of the same main attribute. Based on this, the primary and secondary goals of this article may be as follows:

1. Main Objective: To create a theoretical framework for implementing an assessment system to measure the degree of landscape integrity.
2. Secondary Objective: To review the geometric relationships of a conceptual model for understanding historical urban landscapes.

1.3. Method

The fundamental basis of this research method is logical reasoning and the alignment of a conceptual model's behavior with geometric rules. This study considers both quantitative and qualitative perspectives, with its main objective being conceptual development. In other words, it opens a new horizon, enabling quantitative, qualitative, and mixed research methods in environmental sciences, such as urban planning, to measure topics in the future. This research, following a table presented by Malek (2013) on the characteristics of qualitative and quantitative research perspectives, employs interactions among categories in the qualitative approach and conceptual model construction in the quantitative approach. The model proposed in this article has been tested and validated in the case study section of the author's doctoral dissertation, utilizing both inductive and deductive interpretations. Therefore, a mixed-method research approach (Kashmiri et al. 2016, 51) was effectively used to achieve results.

The present article—which is extracted from research aimed at developing an assessment system for landscape integrity—begins with a critique of previous studies, including their diagrams and conceptual models, and selects those diagrams suitable for loading. Then, through an inductive expansion of a simple example, the concept of integrity is defined in terms of wholeness, and its opposite, fragmentation and dispersion, is defined in terms of incompleteness. The purpose of this article is to critically review previous studies to develop a conceptual model that can be quantitatively loaded, and, once created, use it to reason about the conceptual model's behavior and match it with geometric rules. In the original research, of which this article is a retelling of parts, no special software (except for software specifically for sorting scientific notes) was used, and all analyses were based on library studies and their matching with field observations in the case study. Narratives that, due to the extensiveness of the explanations required to match them with the conceptual model, did not find the opportunity to be narrated in this brief space.

2. RESEARCH QUESTIONS AND HYPOTHESES

1. What phenomenon or attribute in a historical urban environment or landscape must be preserved to prevent distortion of its physical, functional, and emotional aspects?
2. What measurement system can be defined for historical urban landscapes that, while accepting gradual evolution and transformation, also accounts for critical details affecting their integrity?
3. When does this new system for documenting and quantitatively assessing landscape integrity recommend conservation policies, and when does it recommend development policies, to maintain or create balance in a landscape?

The central research hypothesis presented in this article posits that integrity in a landscape is disrupted when the natural and balanced growth pattern across all its features is disturbed for a prolonged period (relative to the environment's formation time). This disruption may result from incomplete or stalled growth in one feature or from unnatural growth in another. This perspective does not judge whether such growth is positive or negative; it only considers the imbalance among the various aspects of the landscape as a threat to its integrity.

The strategy used to address the research questions and test this hypothesis in the main research was to use the analytical statements from the SWOT table and free them from positive or negative evaluation (such as strengths and weaknesses or opportunities and threats). These statements were the result of field studies of the special development plan for the historical city of Boshroiyeh (between Ferdows and Tabas), which the author also conducted in the middle years of 2011. In this strategy, the statements of the SWOT table are transformed into analytical and news facts that, in addition to being the basis for preparing technical questionnaires and entering information into spatial systems in the future, are also very effective in matching the behavior of the model with field observations and make the model findings tangible in the minds of the respected audience.

3. RESEARCH BACKGROUND AND LITERATURE REVIEW

The first assumption is that the reader is familiar with definitions of the landscape—from the etymology of the word "land" and the establishment of the concept of landscape by Dutch painters in the sixteenth century (Makhzoumi 1999; Jokilehto 2008, 57) to the disciplines that deal with various aspects of landscapes, finally categorized by Stephenson into three main components: form, process, and relationship (Stephenson 2008, 129).

The concept of integrity—defined across seven aspects —location, layout, presentation, materials, construction techniques, and ultimately perception and cohesion (Jokilehto 2008, 324-325) —and generally categorized into three components —structural, visual, and functional—is well established. To assess integrity in historical works, buildings, fabrics, and landscapes, some or all of these seven aspects are applied according to their nature, formation, and morphology. The problem is that no model exists for measuring landscapes. While historical and cultural works—from buildings to urban fabrics—have clear examples, landscapes are of a different nature. They are like gaseous planets in the human value system, distinct from terrestrial planets. One cannot land safely on them, so researchers are compelled to position their telescopes on their moons. At this point, the majority of articles and scientific works have shifted toward concrete examples, citing issues that are more readily measurable for assessing integrity. Some of these studies have not even considered the feasibility or the methods for quantitatively measuring the concepts they mention. Most researchers attempting to define quantitative metrics for landscape assessment have focused primarily on identifying and categorizing these components. Ultimately, they present a diagram of the categorized components to the audience, which is commendable in itself. For instance, Mahan and Mansouri (2017) present a diagram of a proposed landscape assessment process, in which quantitative evaluations constitute one of its subdivisions (Fig. 1).

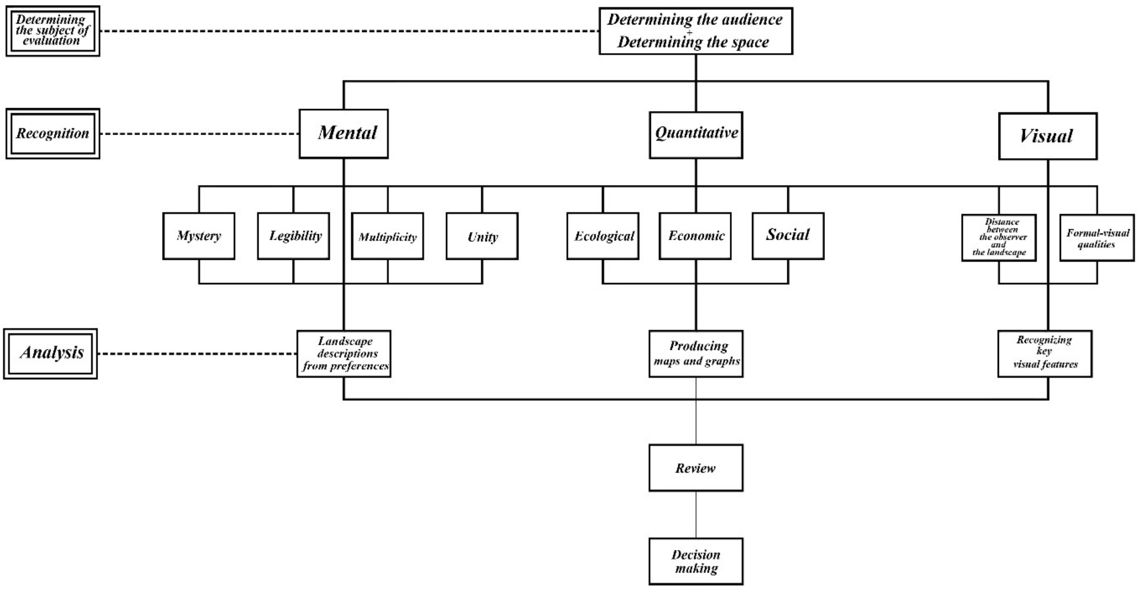


Fig. 1. Diagram of the Proposed Landscape Assessment Process
(Mahan and Mansouri 2017, 39)

Similarly, Pourisafzadeh et al. (2012) provide a table of principles for comprehensive landscape restoration, along with recommendations for preserving each of the main landscape pillars. In their framework, these four pillars include humans, nature, culture, and history. Additionally, Pazir and colleagues (2012) indirectly emphasize three core components in their definition of landscape restoration: diversity, continuity, and identity.
Previous studies in the field of urban landscape restoration have offered different conceptual frameworks to understand the fundamental pillars of landscapes. Pourisafzadeh et al. (2012), using a holistic approach, identify four essential pillars as follows:
1. Humans (as users and creators of the landscape)
2. Nature (ecological systems and the natural environment)
3. Culture (behavioral patterns and social values)
4. History (collective memory and temporal continuity)
This four-dimensional framework adopts a holistic approach to landscape restoration, viewing all material and immaterial dimensions of the landscape as mutually interacting.
On the other hand, Paziresh et al. (2012) emphasize three key components in their definition of landscape restoration:
1. Diversity (the multiplicity and variety of constituent elements)
2. Continuity (systematic relationships between components)
3. Identity (distinctive markers and unique characteristics)
Hemmati (2015) presents a diagram of strategies for achieving a balanced landscape, including diversification, circularization and decentralization, multifunctionality, adaptive planning and design, and strengthening network connectivity. These examples, presented in Figure 2, aim to provide measurable indicators for assessing a balanced, desirable landscape.

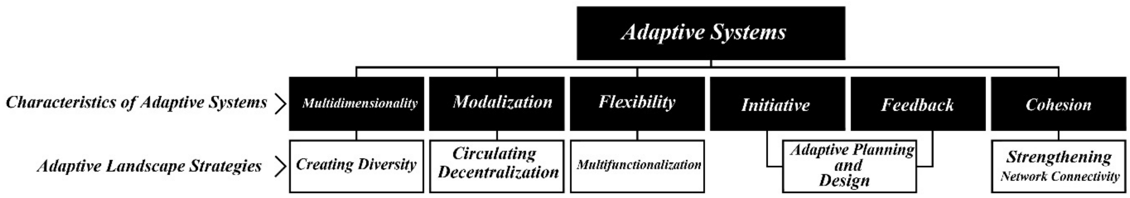


Fig. 2. Strategies for a Resilient Landscape
(Hemmati 2015, 78)

Karimi-Moshaver et al. (2015) present a table that compiles various definitions of the urban landscape, as cited by different researchers. In this table, scholars categorize the dimensions of urban landscapes differently. Kevin Lynch (1960) classifies the dimensions into three categories: perceptual, physical, and functional. Similarly, the findings of Mansouri (2008) and Karimi-Moshaver (2010) include aesthetic, functional, and identity dimensions. Abdollah Khan Gorji considers visual, structural, spatial, activity-based, identity, and environmental dimensions. Mahmoudi (2006) emphasizes sustainability, identity, beauty, and unity.

Another diagram in the literature categorizes landscape architecture approaches (Fig. 3). In this diagram, inanimate physical elements, living nature, and the human domain are represented as the three main branches.

In studying the components that make up the landscape, different researchers have taken different approaches. Faizi and Khakzand (2008) have divided the landscape components into three categories: inanimate physics (including factors such as climate, geology, and water resources), animate nature (including food, ecosystems, living organisms, and fossils), and human domains (including cultural, economic, and social aspects).

In contrast, other researchers, adopting a more holistic perspective, have proposed a circular model for analyzing urban landscapes, in which the three main components—human, natural, and human-made—are depicted as overlapping and interconnected. In this circular model, deeper layers are divided into objective and subjective components: the two objective sections (natural and human-made components) occupy approximately two-thirds of the circle, while the subjective section (human perceptions and experiences) occupies the remaining one-third.

Although these two approaches may appear different at first glance, they are in fact complementary. The tripartite division of Feyzi and Khakzand emphasizes the nature of the elements. At the same time, the circular model focuses on the interaction and interconnection among these elements in forming the concept of landscape. Both models indicate that a comprehensive understanding of urban landscapes requires simultaneous attention to material and immaterial, objective and subjective, and natural and human-made dimensions. This multidimensional perspective helps us better understand the complexities of urban landscapes and provides a foundation for more integrated management and design strategies.

However, the goal of this article is not merely to break down the categories related to landscape integrity. Instead, the objective is to identify the type of reasoning system that should be used in diagrams and conceptual models to quantify the perfection of a landscape, under the concept of integrity or an equivalent metric.

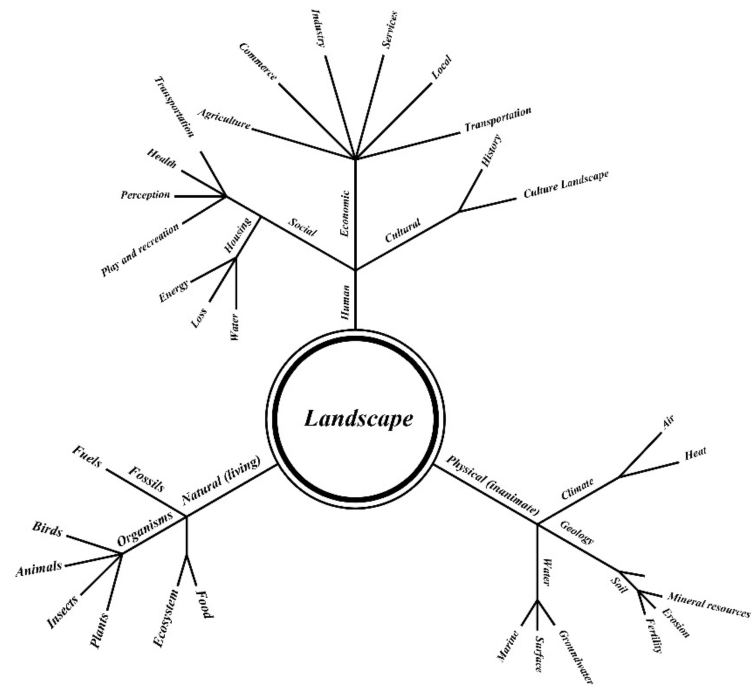


Fig. 3. General Approaches in Landscape Architecture
(Feizi and Khakzand 2008, 68)

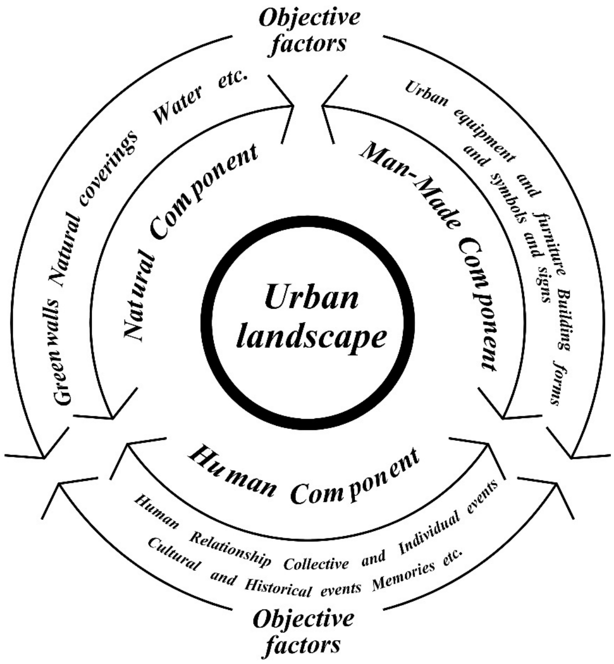


Fig. 4. Classification of Factors and Components Constituting Urban Landscapes
(Feizi and Asadpour 2013, 6)

Therefore, the author's central tendency here is towards models that provide at least scaled components to mount other components. For example, one dimension that can take a quantitative form is the concept of time. Shokoohi (2008), quoted by Fayyaz and Sarafaraz (2011), in Figure 5 presents a diagram of the process of creating a cultural landscape, including architecture and the city, from the perspective of Karl Sauer. He considers the cultural landscape to be the same component of culture that passes through the natural context and, with the diverse forms it produces, finds identity as a single whole. In Figure 6, Ahmadi et al. (2017) present a diagram of landscape ecology and its study process, and consider spatial succession from regional to local and temporal evolution from the past to the future as the two principal axes for understanding landscape ecology. They also focus on understanding processes, patterns, temporal evolution, organisms, populations, societies, and ecosystems, and on analyzing flows and dynamics.

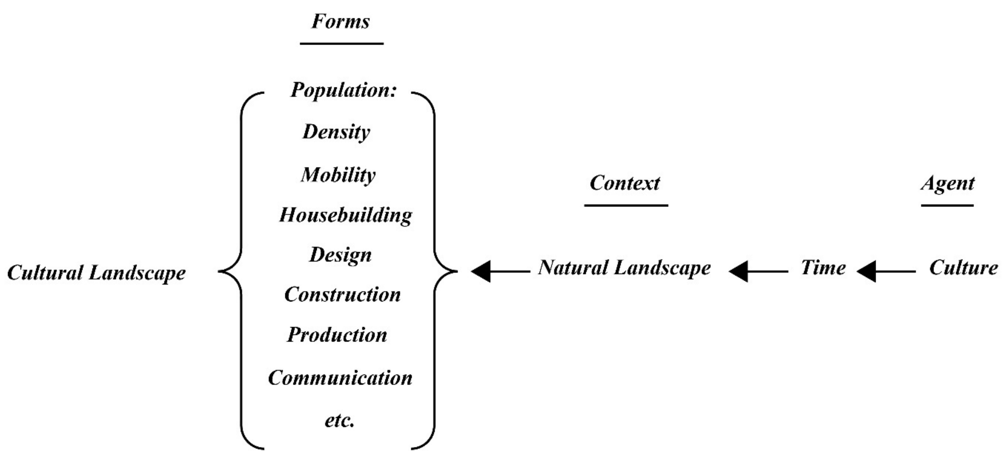


Fig. 5. Cultural Landscape (Including Architecture and Urban Elements) from the Perspective of Carl Sauer
(Shokoohi 1999, cited in Fayyaz and Sarafaraz 2011, 102)

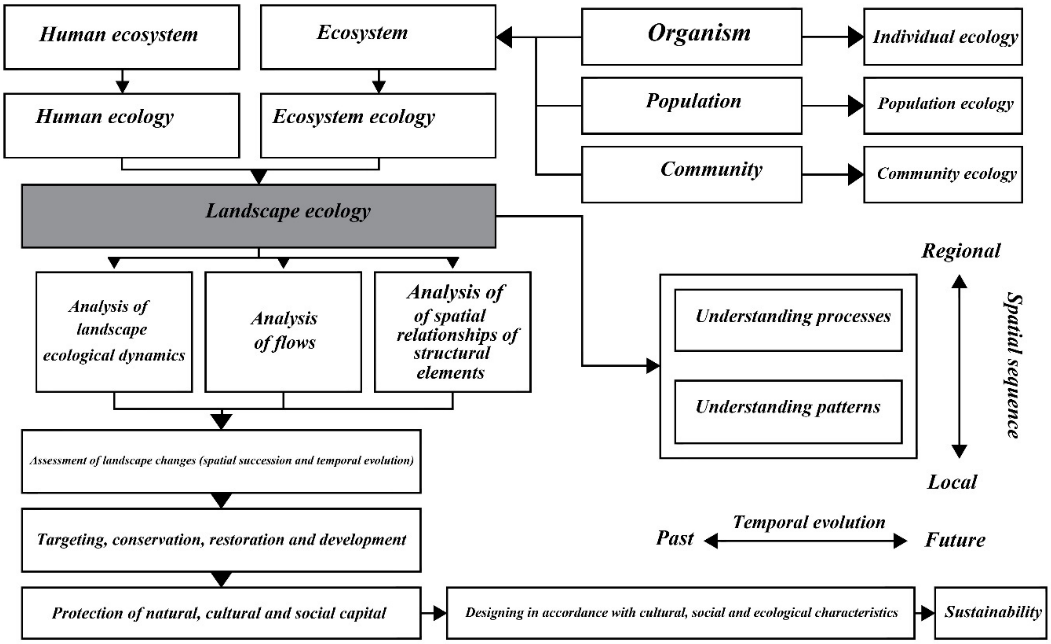


Fig. 6. Diagram for Landscape Ecology Assessment
(Ahmadi et al. 2017, 6)

Atashinbar (2009), in Figure 7, presents a diagram in which the urban and architectural landscape symbolizes the level of civilization and collective identity of peoples and nations. He defines the city and humans as products that evolve within the temporal context, where their interaction manifests in perceptions of human sensations and cognition. For instance, in this framework, the temporal dimension can carry quantitative components.

Simon Bell identifies three significant aspects of the landscape — visual characteristics, perception, and biological processes — and establishes relationships among them (Mahan and Mansouri 2017, 22; Ashouri 2008). In Figures 1 and 2, a simple diagram illustrates the components influencing the landscape and attempts to define it as the result of interactions between society and the environment over time. Accordingly, the three elements—society, environment, and time—are introduced as the main factors shaping the landscape.

There are different views on the basic elements that make up a landscape, each emphasizing different aspects. In his analysis, Simon Bell considers a landscape to be the result of the interaction of three key dimensions: objective visual features, which include the physical and physical characteristics of the environment; perceptual processes, which deal with how humans perceive and interpret these features; and biological aspects (Mahan and Mansouri 2017, 22) emphasize the relationship between living organisms and the environment. These three aspects, in their dynamic interaction, form the complex concept of landscape. In contrast, Ashuri (2008) in his analytical model, presents a simpler diagram and emphasizes three other fundamental factors: society as an active and formative element, the environment as a material and natural context, and time as a dimension of evolution and continuity (Fig. 8). In this view, landscape is considered the product of the dynamic interaction of these three factors over time. Society shapes the environment through its activities and values, and the environment, in turn, shapes the formation of culture and social behaviors. At the same time, it places these interactions in a historical context.

Although these two perspectives approach the issue from different angles, they ultimately emphasize the complexity and multidimensionality of the concept of landscape. Bell's perspective focuses more on the perceptual and biological aspects, while the Ashourian model emphasizes socio-environmental interactions in a historical context. Both theories show that landscape is not simply a physical phenomenon, but rather the result of a complex interaction of objective and subjective, natural and human, and static and dynamic factors. This comprehensive understanding helps us to avoid reductionism and take a holistic view in the study and management of landscapes.

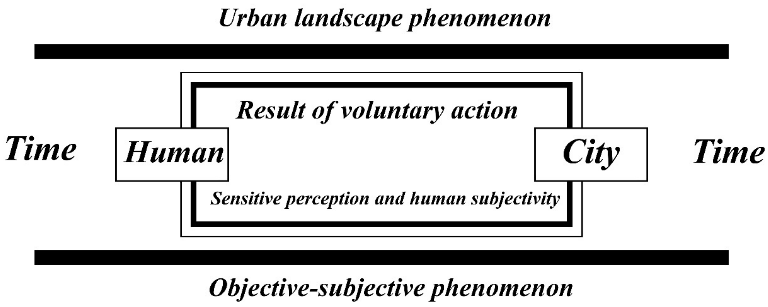


Fig. 7. Representation of Landscape Formation Through Human–City Interaction Over Time
(Atashinbar 2009, 51)

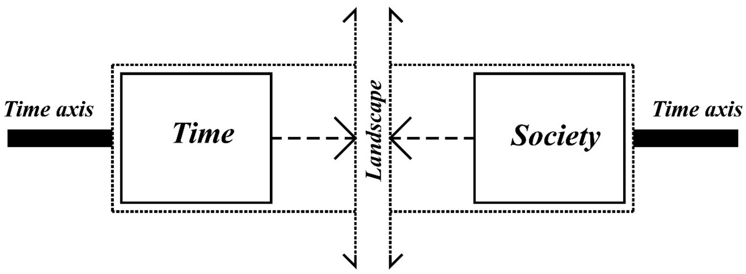


Fig. 8. Landscape: The Boundary of Interaction and Reciprocal Understanding Between Humans and the Environment
(Ashouri 2008, 17)

Using time as a criterion for assessing landscape transformations is not inherently complex. However, its manifestation as a measurable criterion in evaluations requires analysis and comparison of different positions and intervals. For example, Zandi (2014) presents, in Figure 9, a multi-path diagram of the stages of urban landscape integration for the city of Tehran. In certain phases, interruptions in the linear paths and a decline in the landscape's integrity are observable from the Pahlavi II period onward. This diagram essentially provides a quantitative representation of the effects of significant changes on landscape degradation. The unique perspective illustrated in this diagram effectively shows the simultaneity of specific changes in the interpretation of landscape integrity.

Among diagrams that examine human interventions in relation to the temporal dimension along three axes, one model illustrates the growth and evolution of landscapes. The diagram presented in Figure 10 (Ainifar and Eshrati 2017, 83) is significant because it provides a classification of landscapes and collects factors affecting them from multiple perspectives. This diagram can serve as a template for developing a novel conceptual model, one that employs three mathematical axes to analyze multiple criteria in relation to one another.

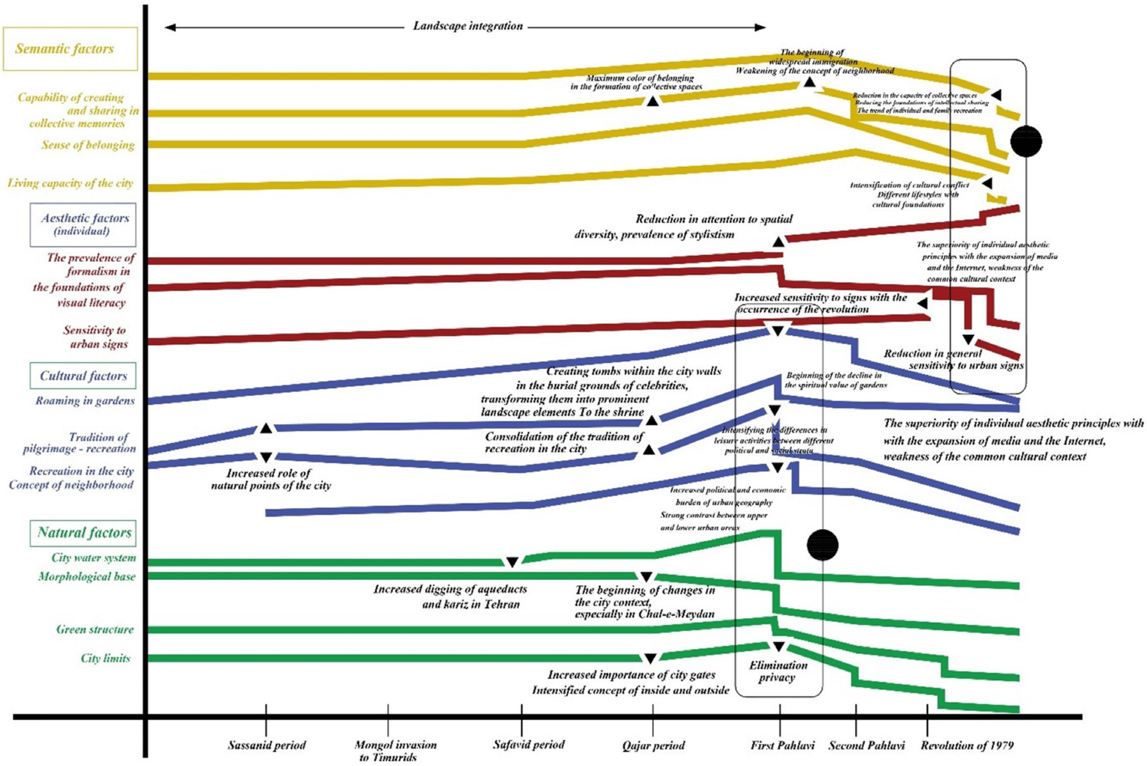


Fig. 9. Stages of Integration, Points of Divergence, and Changes in the Formation Path of Tehran's Urban Landscape

(Zandi 2014, 22)

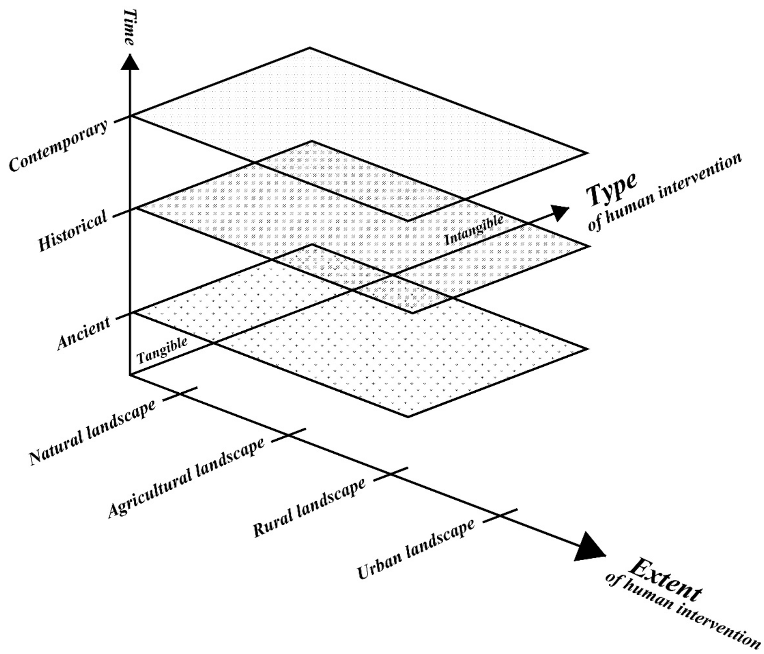


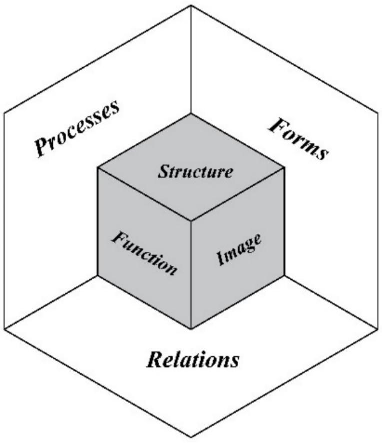
Fig. 10. Conceptual Model Based on Three-Dimensional Axes for Understanding and Typologizing Cultural Landscapes

(Eshrati 2012)

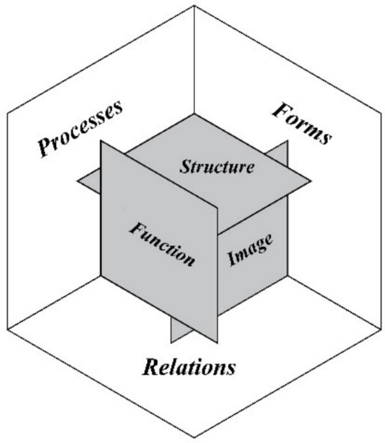
The Cartesian system is the most suitable method for representing a three-dimensional geometric form. If the diagram presented in the article titled "Explaining Integration in the Landscape: A New Conceptual Model" (Kavian et al. 2019), shown in Figure 11, can be appropriately mapped onto the Cartesian system, it seems possible to achieve operational goals for quantifying the components. However, before applying the Cartesian system to these components, more fundamental questions must be addressed.

As seen in Figure 11, in this model, the three components—structure, image, and function—are conceptualized as planes, with their proper proportions and boundaries intended to indicate the integrity of the subject. The healthy and disordered states are illustrated in Figures 11a and 11b, respectively.

According to this conceptual model, in the incomplete state of the subject or the disordered state of the landscape, the planes associated with the components of integrity do not connect properly with one another. Numerous questions arise here. First, how do we know where these planes are located on the diagram? What metrics and variables do we have to determine how much these planes have expanded and distorted each other's view? Is there always only one balanced state for this cube that we must protect like a precious doll, or are there other states the subject can transition through? And if so, how do we know that the state we observe is not on the path to creating a new order and a new composition?



A) Healthy and integrated state of the subject



B) Disordered State of the Subject

Fig. 11. Kavian et al. (2020) Conceptual Model for Explaining the Concept of Landscape Integration

The most important question is whether this model even has a definition for transition states[1]. These are the most critical questions that the authors did not have the opportunity to answer in the previous article. Some of these questions can be answered by creating a Cartesian model, while others require further arguments and engagement with other themes of integration.

3. RESULTS AND DISCUSSION: QUANTIFICATION OF THE CONCEPTUAL MODEL OF INTEGRATION

3.1. Main Idea in the Reasoning

We usually judge a landscape as if a painter had painted it. The painter creates a painting in a relatively short time and uses all the techniques he has learned to express the landscape better. After a particular stage, if he puts any other work on that painting with a brush, it is as if something has been reduced from its perfection. This feeling also constitutes one of the synonyms of integration[2], which is a concept called totality. The painting is finished, and the skilled painter knows the time and state of this totality. It is the same in architecture to some extent. However, due to the practicality of architecture, it also accepts additions over time. In urban complexes and textures, the temporal and spatial scales gradually expand, and each change adds a layer to their existence, to the point where, in the environmental/landscape system, evolution takes on a more critical role than the first emergence. Just like nature, which has a sense of perfection every time we look at it. While it is evolving, when we look at pristine nature and its creatures, what we perceive goes beyond their apparent beauty. While the current forms of living elements of nature, such as plants and animals, are the result of several million years of evolution, and this process is still ongoing, we sometimes imagine that they were designed all at once and precisely for the conditions that exist today and have no flaws. While this is a false impression

Now, the ultimate goal in integrated management should be to design the process of landscape growth and evolution so that the subjects are in a complete state at every moment they are assessed. In this way, we need a model that can show the integrity for every moment of a subject's growth. Landscapes are not just historical monuments, and our historical cities are not just ancient sites we should protect. Instead, they should be considered living, dynamic parts that require continuous management and attention to remain sustainable and desirable. Landscapes, by definition, are living beings in the interactive space of man and nature, and integrity can be redefined at every moment of their life. The word "integrity" in the field of political geography is usually used with terms such as "territorial integrity," and in social psychology, with metaphors such as "totalitarianism". But the concept of integrity has emerged in the word wholeness, in the sense of an entity whose composition is complete and flawless, with nothing added to or subtracted from it. In other words, wholeness refers to a sense of stability and perfection, and it is used in contexts beyond the aforementioned, including social, cultural, and human domains. Tahbaz (2002) interprets beauty with its many components, including familiarity and familiarity, simplicity and complexity, scale, harmony, shape, color, light, sound, temperature, smell, and movement, as a sense of the integrity of an environment or landscape. Documents for the protection of cultural wealth on a national and global scale refer to this integrity, and their goal is to manage all environmental changes, developments, and possible additions in a way that they always remain in a state of integrity. So that with the periodic additions and reductions of the existing composition, there is nothing more or less.

Perhaps if we want to examine the opposite concept of wholeness, we can use the idea of "incompleteness." A concrete example of this concept is a city's skyline. Imagine a residential neighborhood that has developed a relatively balanced skyline over 20 years (Fig. 21). This skyline represents the visual coherence and integrity of the neighborhood.

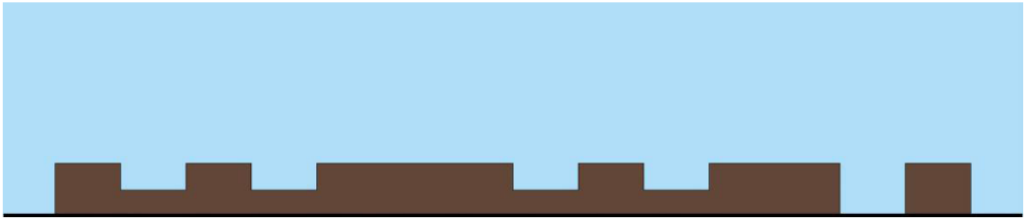


Fig. 12. First Stage; Skyline of a Residential Villa Neighborhood

Now, if changes occur, such as new construction, a state of incompleteness may arise that contrasts with the previous visual harmony. These changes—which may, in some respects, be positive—can still lead to the loss of the sense of integrity and integration.

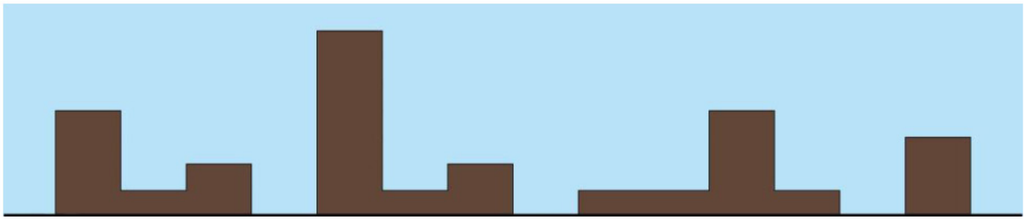


Fig. 13. Second Stage; Skyline of a Residential Villa Neighborhood when a Few Tall Apartment Buildings are Constructed for the First Time.

For example, one or more residential properties may build tall apartment buildings in this neighborhood and sell the units. Regardless of the skyline's aesthetic quality, an observer experiences a sense of incompleteness (Fig. 13).

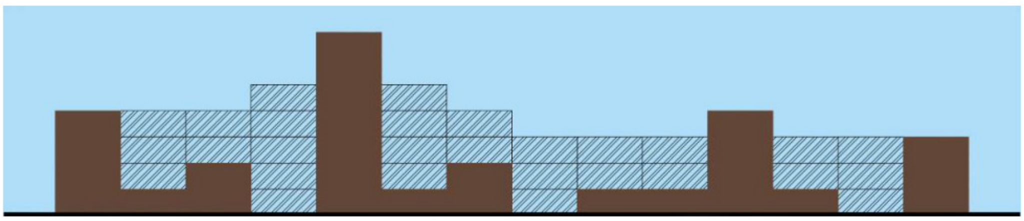


Fig. 14. Third Stage; Hatched Sections Represent Buildings that, if constructed, would Restore the Balance of the Skyline.

The reason for this feeling is the disproportionate height among buildings, as the observer's mind estimates the amount and volume of construction required to balance the skyline. It senses that the environment is still at the beginning or middle of a process of new changes.

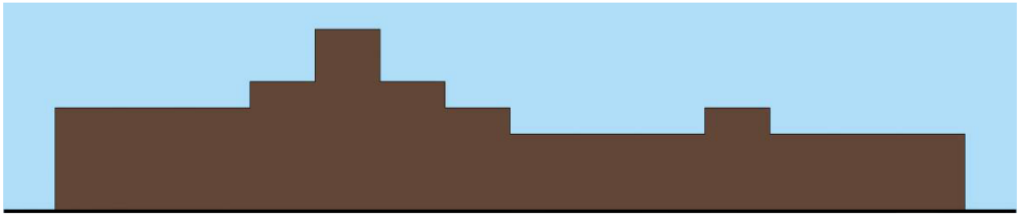


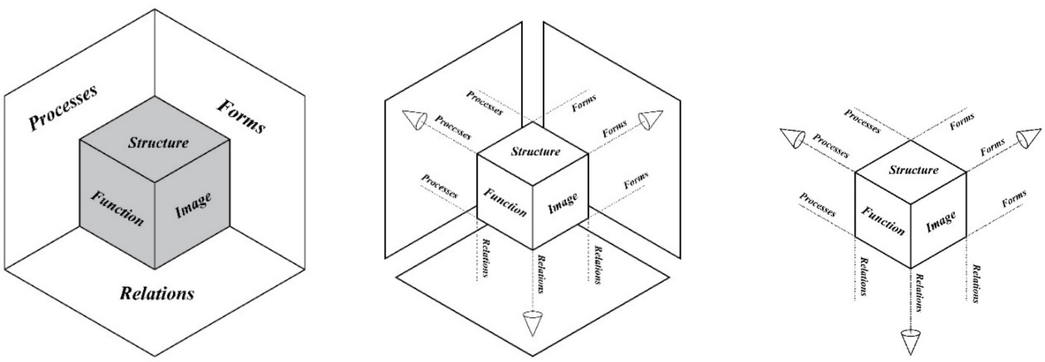
Fig. 15. Fourth Sketch; The Skyline of the same Neighborhood after Balance is achieved by Completing Many Other Tall Buildings.

However, if the city or neighborhood lacks sufficient economic capacity to implement the changes needed to reach the state shown in Figure 15, this situation may persist for several years. Such disproportionate construction leads to the failure to achieve a balanced and integrated skyline, causing visual instability and fragmentation of neighborhood identity, which naturally negatively impacts residents' quality of life. The sense of incompleteness is the source of many psychological and social instabilities. Increased crime in neighborhoods with significant height disparities among buildings (Karimi Moshaver, Sajjadzadeh, and Vahdat 2019, 51) is strong evidence of this claim. Perfectionism may also originate from a deep feeling of insufficiency (Yang and Stoeber 2012), offering a compelling lens for understanding the relationship between humans and the urban environment. When we examine spatial inequalities in cities, this psychological theory gains deeper meaning. Feelings of incompleteness and environmental inefficiency do not arise in isolation but develop in a social context. Thus, measuring integration is essentially evaluating the ratio of harmonies to disharmonies.

Assessing building heights and establishing regulations for new constructions is part of the solution, but the issue runs deeper. We must recognize that urban expansion often moves us away from ideal perfection, especially when new imbalances emerge between environmental growth and landscape development across different dimensions, delaying the attainment of equilibrium and perfect completeness. Cities must, of course, develop, but the "epic of a city's identity" should, at every moment, remain in its optimal state of integrity. This is the meaning of the wholeness we seek. In summary, beyond precise and coordinated planning, we need a strategic system of continuous decisions that simultaneously addresses physical development and the preservation of spatial identity and integrity.

3.2. Formation of the Cartesian Conceptual Model and Its Main Hypotheses

The main proposal of this paper is to apply the new definition to previous conceptual models and to simplify the Cartesian system to prepare it to accept quantitative components.



A) The initial conceptual model, which refers to environmental (landscape) pages and subject (integration) pages.

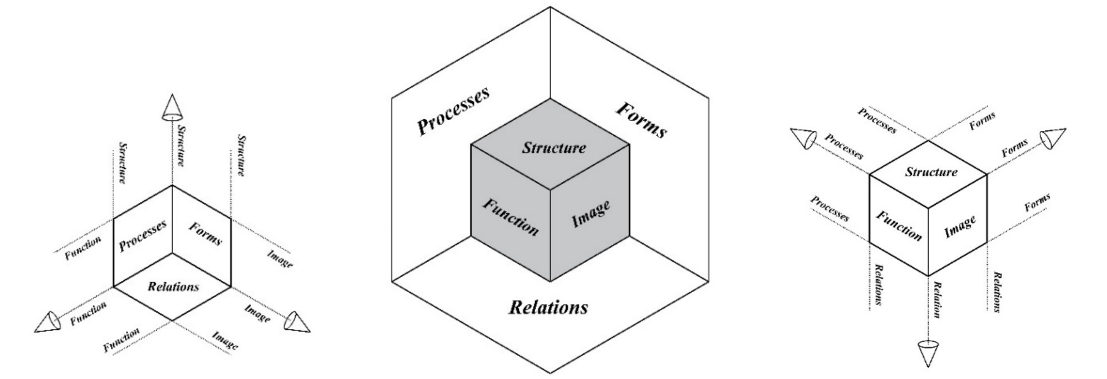
B) The three axes, instead of the three pages in Sketch "a", carry the environmental components.

C) The new conceptual model resulting from the combination of the three integration pages and the three landscape axes.

Fig. 16. Development of the Conceptual Model into a Quantifiable State

The set of Figure 16 diagrams applies a Cartesian system to the previously mentioned conceptual model to prepare it for quantitative integration. From Figures a to c, the pages related to environmental components are removed. Instead, three main axes are formed (representing the six principal directions in the Cartesian environment) capable of carrying variables. This outcome essentially describes an analytical framework for a deeper understanding of the city and its elements, utilizing the relationships among three types of variables: form, relational, and processual. This analysis helps understand how these variables interact and affect citizens' experiences. The image page here refers to our intuition regarding the combination of form and relational variables. The structure page presents the intuition behind the combination of form and process variables. The function page explains the intuition behind the combination of process and relational variables. Thus, each page representing a qualitative component also has two quantitative variables, whose interaction determines the quality of the element displayed on the page. For example, the image page arises from the combination of form and relational variables, and the other pages function similarly.

This diagram also has an opposite form, shown in Figure 17: the components mounted on the axes are replaced by elements belonging to the planes; naturally, our perception is also reversed. The components mounted on the axes have taken a quantitative form and represent the extent of the attributes' overlap between the axes. At the same time, the components located on the planes represent an entity and a dynamic quality. Here, in Figure 17, we present two inverted models of the central diagram (b), shown in subfigures "A" and "C". In Figure A, integration is defined as a quantitative attribute and perspective as "entity", and in Figure "C", integration is considered as the condition of existence and perspective as the extent of realization and scope of this integration.

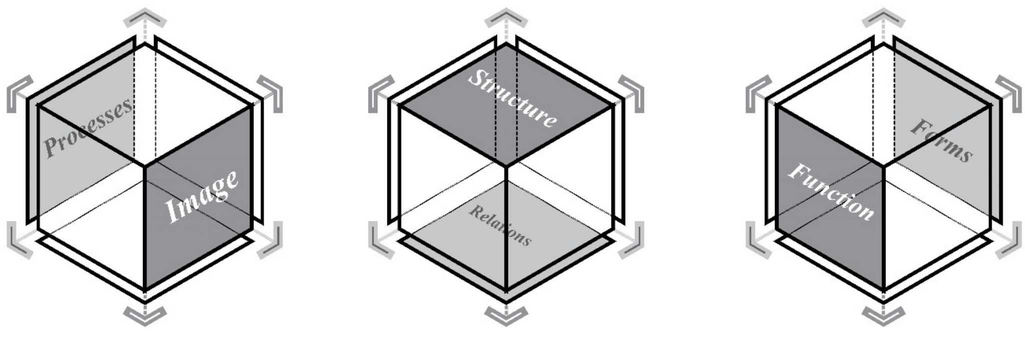


A) Integration components as axes, landscape components as pages
B) Original conceptual model
C) Integration components as pages, landscape components as axes

Fig. 17. Two Inverse Models as Two Alternatives for Cartesianizing the Conceptual Model

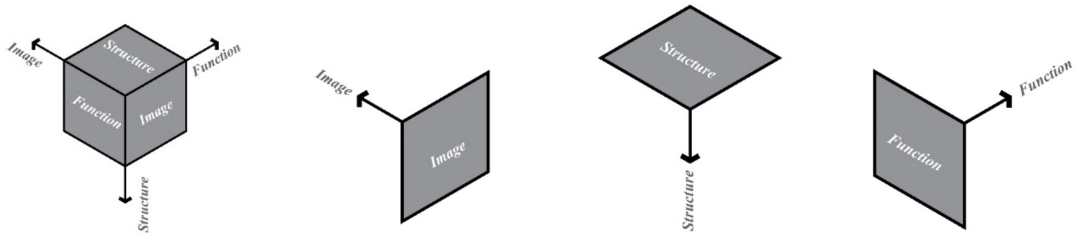
In both cases, it is the coordination of the growth of the two adjacent planes that creates a unified image of the cubic model in the audience's minds. So that when the two adjacent planes have not grown in harmony with each other, we draw in our mind the development plan of the incomplete plane next to the plane that has grown. To the extent that the smaller plane is insufficient, the concept of the integrity of the subject appears more incomplete in our minds. This issue will be better explained after determining the quantitative and qualitative nature of the component. Now we must see whether we can create a model that unifies both assumptions about the variables on the axes or planes.

The first step is to divide the cube into two halves, external and internal. If so, in Figure 18a, the image plane —the external surface —is the process plane. In Figure 18b, the structure plane, the external surface, is the communication plane, and in Figure 18c, the function plane, the external surface, is the form plane.



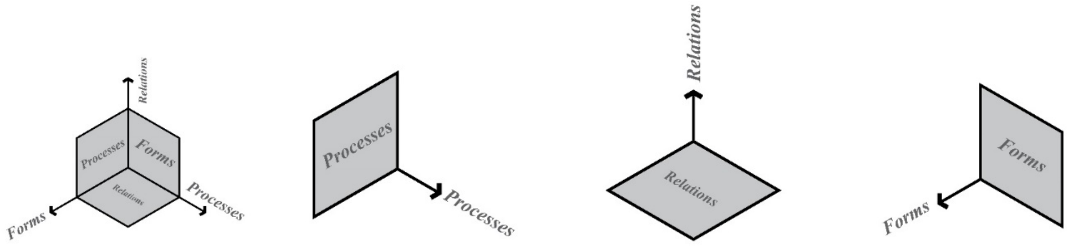
A) Image page and Process page facing each other
B) Structure page and Relation page facing each other
C) Function page and Form page facing each other

Fig. 18. External and Internal Pages of the Cubic Model Facing each Other



A) Pages and the three axes of the conceptual model in relation to each other | B) Image axis, perpendicular to the Image page | C) Structure axis, perpendicular to the Structure page | D) Function axis, perpendicular to the Function page

Fig. 19. Illustration of the Axes and Pages of the Conceptual Model in the External Half of the Cube



A) Pages and the three axes of the conceptual model in relation to each other | B) Process axis, perpendicular to the Process page | C) Relation axis, perpendicular to the Relation page | D) Form axis, perpendicular to the Form page

Fig. 20. Illustration of the Axes and Pages of the Conceptual Model in the Internal Half of the Cube

In the observed images, the viewer's gaze tends to perceive the upper part of the cube (the half related to structural unity) as protruding, and the lower part (the half about perspective) as recessed. In other words, one represents the inner surfaces and the other the outer surfaces. Determining which elements to place on the inner surfaces and which on the outer surfaces becomes somewhat simpler here. The inner surfaces can be considered to reflect the environment and perspective, and the outer surfaces represent the subject. The reason for this is that the environment and the landscape induce the concept of a space surrounding the subject and the observer, a space in which we ourselves are located. Therefore, it is as if we are enclosed within this cubic model, recognizing the walls of the environment around us.

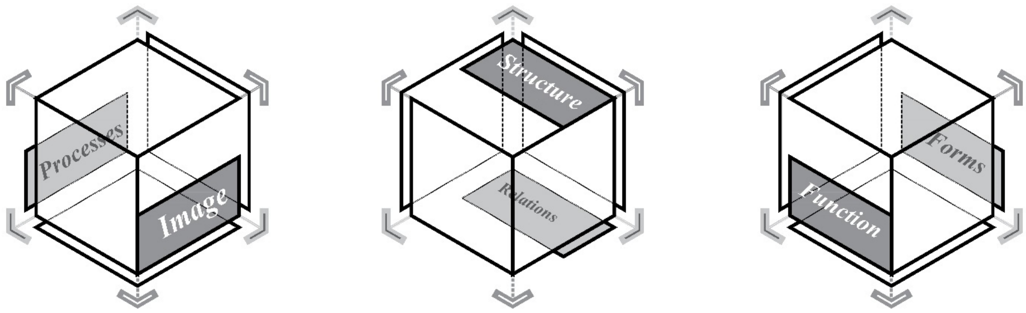
In contrast, the subject of the outer surfaces is a phenomenon that is perceived from the external perspective, and we are in control of it. Therefore, the unity of the landscape is achieved when the three internal aspects of the environment coincide with the three external elements of the subject. This unity is the point of intersection of two perspectives, internal and external; the moment when the perspective is perceived both as a subject and as an observer who is aware that he is himself part of this whole.

UNESCO's flexible and somewhat vague definition of the historic urban landscape – sometimes defining it as the entire city, its gardens, its natural environment and all its surrounding mental and physical representations, and sometimes simply as a way of seeing rather than an objective entity (UNESCO 2013, paragraphs 8 and 9) – suggests a hesitation between this inner/outer dichotomy and the choice of one of these aspects. Unity here seems to be achieved when the landscape is transformed from a mere painting into a window that opens onto the world it represents.

We now identify unexpected similarities between the situation on the facing pages and the geometric laws governing the model. As shown in Figure 21, this method relies on transferring the images on each page to the page opposite it. In this way, any shape or area that the image page, for example, has taken on must be drawn on the page opposite it (i.e., the process page). In the same way, any shape that the structure page has created as a result of expansion towards the form or process axis is drawn with the same characteristics on the relationship page. Also, the shapes on the function page are transferred to the form page. At this stage, it is possible to analyze the effects of the subject's shortcomings and deficiencies on the environment and landscape. This theoretical framework is entirely consistent with the content of Figure 21. A corresponding reduction on the opposite page will match any reduction on one page. In other words:

- A decrease in the process page will cause a reduction

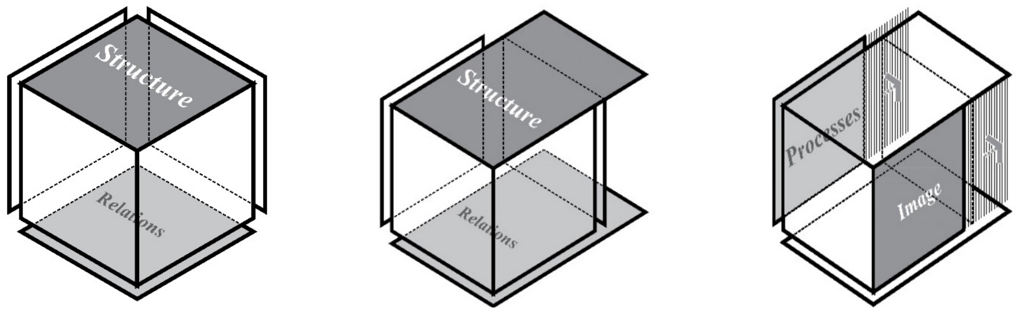
in the image page and vice versa (as per Fig. 21A)
- A decrease in the relationship page will cause a reduction in the structure page and vice versa (as per Fig. 21B)
- A decrease in the form page will cause a reduction in the function page and vice versa (as per Fig. 21C)



A) Mutual effect between Process and Image pages B) Reciprocal reduction relationship between Relation and Structure pages C) Reciprocal interactive reduction between Form and Function pages

Fig. 21. Dynamic Equilibrium Mechanism in the Urban Landscape System with Changes in Page Shapes and their Reflection on the Opposite Page

In certain circumstances, when, as shown in Figure 22, we witness an unbalanced growth of one of the planes along the relevant axes - in such a way that, based on the theoretical framework presented in the development of the conceptual model, an ideal cube with larger dimensions is drawn than the existing cube - this disproportionate growth, as shown in Figure 22c, is interpreted as a defect in the adjacent plane. This defect can also affect the opposite plane on the other side of the model.

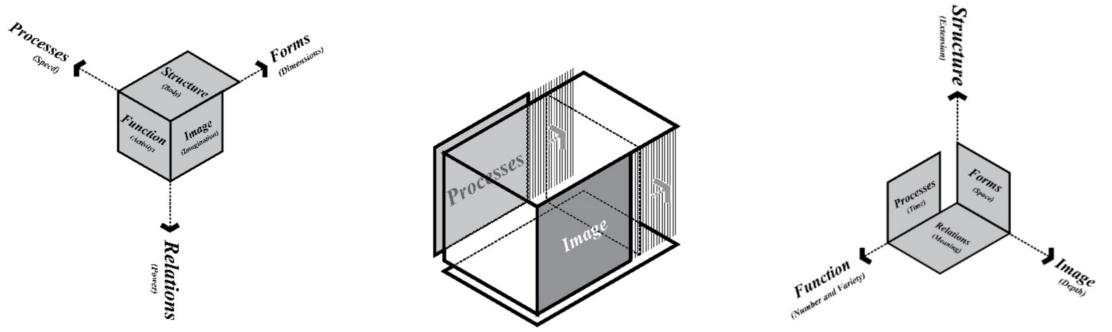


A) The foundational structure of the cubic model within the integrated landscape framework B) Development of the Structure page and its impacts on the Relation page C) Consequences of the Structure page development on the Image and Process pages

Fig. 22. Dynamics of the Development of Opposing Pages and their Impacts on the Expression of Deficiencies in Adjacent Pages; this is also Part of the Dynamic Equilibrium Mechanism in the Urban Landscape System

The growth of each page in this model—not only directly affecting its opposite page—also reveals deficiencies in its adjacent page. These deficiencies, in turn, manifest on the opposite page as well. In other words, sensitivity to initial conditions (butterfly effect), non-linear responses to interventions, and the emergence of new characteristics[3] from component interactions are fundamental features of this conceptual model. This model operates at three levels of dynamic relationships, where any change triggers a chain of cascading transformations. This analysis demonstrates that the model is not a static system but a dynamic ecosystem with complex causal relationships, requiring intelligent management.

Now, when we aim to represent the state of integration in the landscape on the conceptual model, we should display both halves of the cube together yet separately, as shown in Figures 23a and 23c. This is illustrated below.



A) Display of disrupted integration on the external half of the cube B) Developed Structure and Relation pages and deficiencies in their adjacent pages C) Display of disrupted integration on the internal half of the cube

Fig. 23. Representation of Integration Status on the Two Halves of the Cube and their Combination

The difference between the present model and the cubic model referenced in the previous article is that here we base the evaluation of integration on gradual evolutionary development. The last model assessed integration solely based on page mismatches. In contrast, this model introduces an evolutionary system in which the extent of expansion of conceptual model pages determines the scope for realizing and forming a newer entity under the notion of integration. The essence and precise narrative of the author's idea here is that when the conceptual model's balance in a landscape is disrupted, the landscape, with its existential instinct, begins to self-equilibrate over a broader range. Then, if the balance of pages in this wider range is disrupted again, it starts to rebuild a new equilibrium over an even larger range. This cycle of development and destruction thus continues from the most minor scale of the landscape to the supra-landscape region, at both temporal and spatial scales, as illustrated in the diagram presented by Makhzoumi (2015, Fig. 24), which shows units from the smallest to the largest scales of the landscape.

In every small range where balance is disrupted, the tools for developing equilibrium push it to a larger scale. However, conservation—which the author regards as the pinnacle of landscape intelligence—is meaningful only if we can restore balance at the very scale at which it was disrupted.

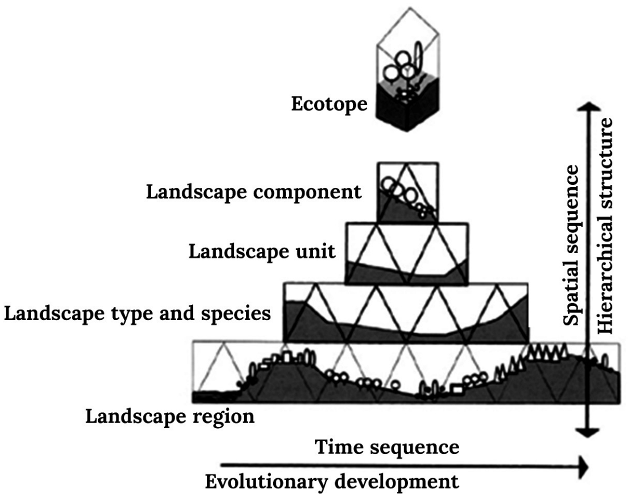


Fig. 24. Landscapes are Organized Hierarchically and with Spatial Continuity from the Smallest Homogeneous Identifiable Unit to the Global-Scale Landscape

(Makhzoumi 2000)

4. CONCLUSION AND MODEL TESTING IN THE CASE STUDY

This conceptual model, by converting the abstract idea of integration into a tangible three-dimensional structure, provides a deeper understanding of the dynamics of historical urban landscapes. By visualizing the complex relationships among components as a cube, not only can the quantity and quality of interactions between components be measured more accurately, but hidden weaknesses and disruptions in the system also become apparent.

The ingenuity of this model lies in its ability to reflect all strengths and weaknesses by showing the mutual relationships among different dimensions of the historical landscape—from physical and structural features to functional and perceptual aspects—like a transparent mirror. When one element of this cube changes, its effects manifest cascadingly across other layers. This feature helps urban planners and designers anticipate potential consequences in all dimensions of the landscape before implementing any project.

This conceptual model elegantly demonstrates that growth in a single dimension alone cannot serve as a complete measure of progress. In fact, if one page of the cube expands in a particular direction without proportional growth of other pages, this imbalance itself may indicate incompleteness or a gap in the system. The model teaches us that actual development occurs only when all dimensions grow harmoniously and proportionally. Any observed progress in one section should mirror corresponding advancements in other sections; otherwise, what initially seems like a positive achievement may ultimately reflect imbalance and deficiencies in different parts of the system.

To make the model's geometric behavior more tangible, a case study is highly informative. The historical city of Bashrooyeh in the 1390s (2011-2021) provides an appropriate context to test the efficacy of this cubic model. In the present study, by setting aside conventional evaluative frameworks such as SWOT analyses, we reanalyze raw data from previous studies in an impartial manner using this new model. This approach allows for a more objective representation of the relationships among urban elements. The authors, in studies of the Special Development Plan for the physical, cultural, and social aspects of the historical city of Bashrooyeh in the 1390s, derived analytical propositions that capture the city's existing physical and functional conditions. These propositions were previously presented in four evaluative categories: strengths, weaknesses, opportunities, and threats. In the current research, they have been collected as neutral propositions without prior judgments and serve as the basis for analyzing the expansion or contraction of pages in the conceptual model. Two propositions are evaluated here, and the page layout in the conceptual model is matched to their current status.

First proposition: Construction of low-quality buildings within the historical fabric

The phenomenon of low-quality construction in historical cores represents a concrete manifestation of the simultaneous collapse or shrinkage of two key components of the cubic model.

1. Collapse or shrinkage of the Image page along the Relation and Form axes: Low-quality buildings disrupt visual cohesion, reduce the clarity of urban signs, disrupt historical sequences, and weaken attachment to place. These effects manifest in the model as a reduction of the Image page.

2. Collapse or shrinkage of the Process page along the Structure and Function axes: Unstable construction processes of these buildings lead to long-term economic inefficiency, structural instability, and disruptions in urban life cycles, which are represented in the model as erosion of the Process page along both Structure and Function axes.

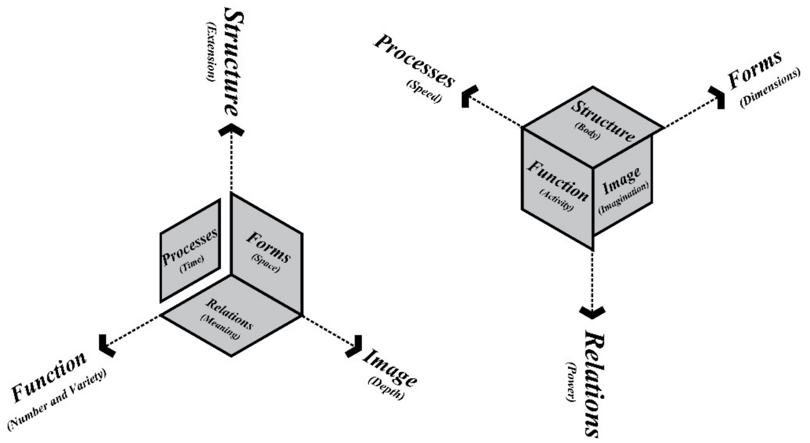


Fig. 25. Simultaneous Reduction of the Image and Process Pages in the Model to Illustrate the Crystallization of the Physical Crisis in the Conceptual Model Due to Low-Quality Construction within the Historical Fabric

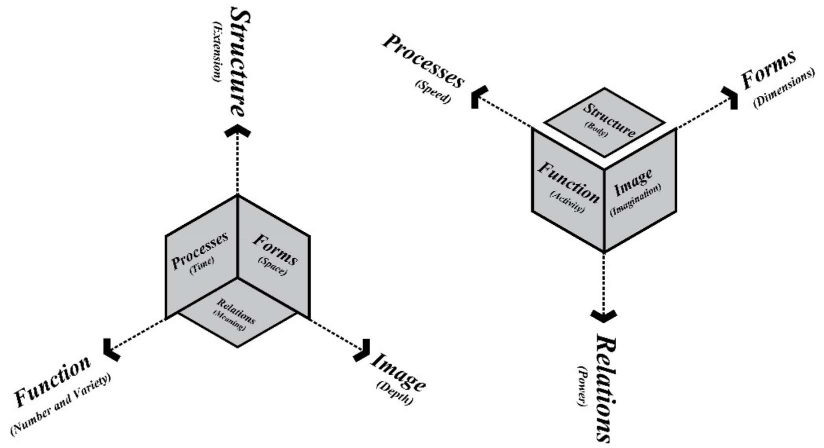
Second Proposition: Settlement of Non-Native or Low-Income Groups in Certain Neighborhoods of the Old City Fringe

When new residents occupy historical fabrics, they generally establish weak connections with their surrounding environment. This weakness is evident in both place attachment and participation in collective neighborhood activities. Such a situation leads to the contraction of the Relation page in our conceptual model.

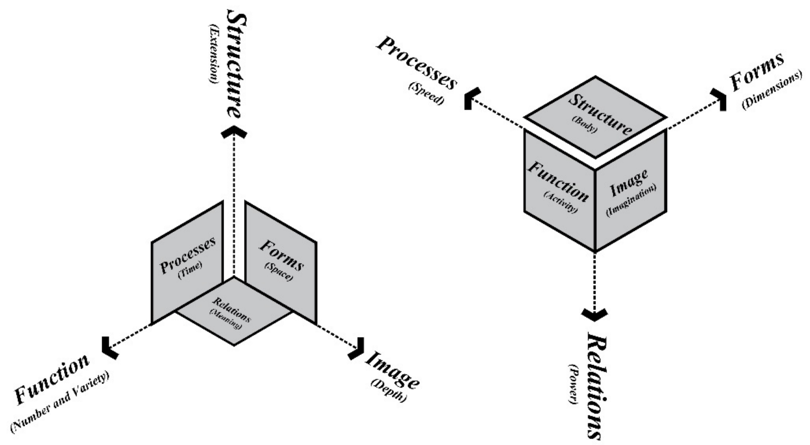
In some cases, this issue is simply a result of the gradual deterioration of the neighborhood and its separation from the city's historical fabric, as clearly illustrated in Figure 26a. However, sometimes this reduction in relation stems from contemporary urban changes. When new street networks and distribution systems are introduced into the fabric, the Structure page begins to shift, which in turn affects the Relation page.

These dual changes cause both the form and the urban symbols to transform, and the neighborhood's life rhythm to accelerate due to repeated interventions. Consequently, the subtle ties that once unified the neighborhood gradually break apart, giving way to a sense of alienation from the space. This is the point where the historical fabric, despite preserving its physical appearance, gradually loses its spirit and identity.

However, in many instances, if new urban planning and the creation of new street networks displace the Form and Process pages, according to this model's evaluation system, deficiencies arise in the Relation page. Figure 26b clearly illustrates this condition. In this scenario, the deficiencies on the Relation page are caused by the movement of adjacent pages. Therefore, in this diagram, despite the different causes in Figures 26a and 26b, the final outcome is a deficiency in the Relation page, reflecting residents' lack of emotional connection to the built environment.



A) Analysis of relational disconnection due to neighborhood deterioration



B) Analysis of relational disconnection due to structural transformations

Fig. 26. Analysis of Changes in the Relation Page Due to Demographic Transformations resulting from the Settlement of Non-Native and Low-Income Groups in Specific Historical Neighborhoods and Fringes caused by Rural-to-Urban and Small-City-to-Large-City Migration

Suppose we summarize the article's conclusion in a few simple statements. In that case, it is a single-dimensional variable that drives the growth of a characteristic (even a positive one) in the environment and landscape. In contrast, the relationship between variables enables us to monitor the state of integration. The geometric behavior of the conceptual model in this research helps us identify these variable relationships within an evolutionary scenario, see our current state, and determine the direction we should move in.

4.1. Knowledge Vision

The conceptual model proposed in this study operates through a dynamic mechanism in which any change on one page affects both its opposite page and adjacent pages. These effects manifest in various forms—from stretching and compression to structural tensions. The study's findings indicate that examining changes in integration components in the urban landscape can represent these complex relationships as geometric deformations in the cubic model.

The proposed cubic model exhibits exceptional dynamism, in which any change on a page produces two simultaneous effects: a direct, immediate effect on the opposite page and an indirect, gradual effect on adjacent pages. The key point is that the nature of these effects is entirely different. Direct effects are usually linear and predictable, while indirect effects often appear nonlinear and complex.[4]

The main challenge of the research lies in accurately understanding the mechanisms underlying these relationships, which require the development of advanced quantitative methods, the use of environmental monitoring systems, and the design of spatial analysis algorithms.

This conceptual model forms a foundation for designing precise field studies, developing quantitative measurement tools, and creating integrated analytical platforms.

Complete understanding of these multi-layered relationships is key to transforming this conceptual model into an operational tool for planning and managing historical urban landscapes.

This research has yielded the key insight that changes in environmental variables affecting landscape integrity can be represented as geometric changes in the cubic model. Cubic deformities indicate disruptions in landscape integrity, and structural ruptures indicate functional breaks. Discovering hidden relationships between environmental variables and geometric changes in the model opens a new window into understanding urban landscape dynamics. A key limitation of this research is the lack of quantitative indicators to measure the amount of displacement and dimensional change of model planes. To turn this theoretical framework into an operational tool, quantifying variables is an early stage of model development in future research. Defining precise parameters to measure changes in each plane, designing metrics to measure growth or decline in dimensions, and creating composite indicators to assess system balance are all part of these processes.

Implementing data in geographic information systems (GIS) requires translating concepts into information layers, designing spatial data structures for model parameters, and ultimately developing a methodology to convert spatial data into geometric changes in the model. Technical challenges include integrating qualitative and quantitative data, developing standard criteria for measuring changes, and designing an appropriate user interface for dynamic model visualization.

Expected outcomes from this model include its transformation into an analytical-decision-making tool, enabling continuous monitoring of historical landscape changes, and creating an early warning system to detect instabilities.

This research pathway can elevate the current model from a theoretical framework to an operational tool for the intelligent management of historical landscapes. The author envisions an integrated system in which the cubic model becomes a dynamic tool alongside a smart map, as illustrated in Figure 27.

This advanced system will have the following key features:

1. Intelligent Landscape Analysis Platform:
- Live connection to GIS systems
- Real-time visualization of changes as geometric transformations
- Direct and immediate user interaction with the model[5]

2. Advanced User Interface:
- Simultaneous display of the urban map and conceptual model
- Automatic adjustment of display scale based on zoom level
- High resolution focus on specific sections of the model

3. Analytical Capabilities:
- Automatic detection of critical points
- Prediction of change trends
- Provision of intervention options

The realization of this vision will proceed through the following stages:

Stage 1: Development of Quantification Framework / Expected Output: Standard measurement indices

Stage 2: Design of Data Conversion Algorithm / Expected Output: Automated analysis engine

Stage 3: Software Prototype Development / Expected Output: Experimental platform

Stage 4: Field Testing and Refinements / Expected Output: Operational version

Future applications of this model include an intelligent monitoring system for historical landscape health, a decision-making tool for urban managers, and a public participation platform for urban conservation. If realized, this ambitious vision will revolutionize historical landscape management, transforming the conceptual model from a theoretical framework into a practical tool for sustainable conservation and development.

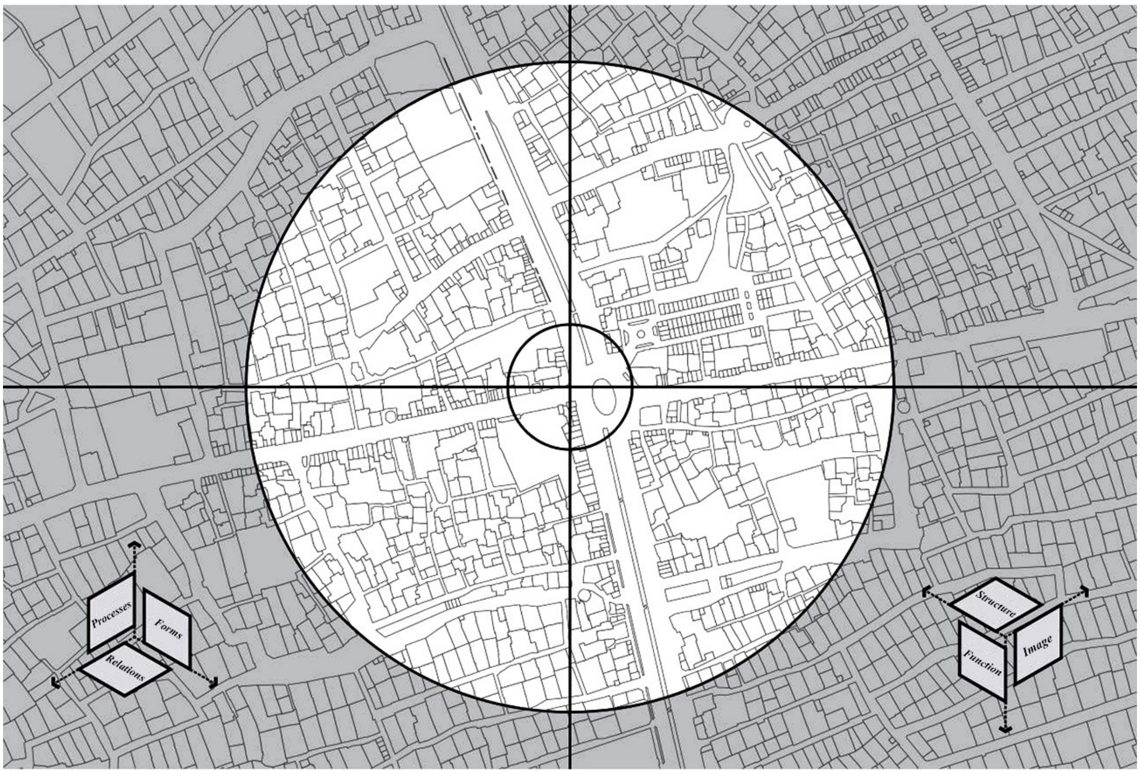


Fig. 27. Conceptual schematic of a landscape analysis monitoring device with an integration and landscape ideogram-based evaluation index in the corners of the display

ACKNOWLEDGMENTS

This article wasn't supported by any financial or spiritual sponsors.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

MORAL APPROVAL

The authors commit to observe all the ethical principles of the publication of the scientific work based on the ethical principles of COPE. In case of any violation of the ethical principles, even after the publication of the article, they give the journal the right to delete the article and follow up on the matter.

PARTICIPATION PERCENTAGE

The authors state that they have directly participated in the stages of conducting research and writing the article.

ENDNOTE

1. That is, an intermediate state that results from moving from one stable state to another stable state.
2. Entirety
3. Emergent Properties
4. The city may still not be a tree, nor may the landscape be a cube. But even without committing to the cubic form, the conceptual core of this model can be redefined as a flexible analytical framework. Flexibility in accepting new variables, adaptability to different scales (from neighborhood to metropolis), and the possibility of combining with GIS systems and intelligent platforms, all apply to this new paradigm.
5. Real-Time

REFERENCES

- Ahmadi, Faryal, Mohammadreza Bamanian, and Mojtaba Ansari. 2017. "Landscape Restoration Method of Natural Landscapes Based on Landscape Ecology Approach." *Bagh-e Nazar* 14(56): 33-42. https://www.sid.ir/paper/125632/fa. [in Persian]
- Ashouri, Ali. 2008. "Urban Landscape; An Expression of Society's Civilization." *Manzar*: 16-19. https://www.noormags.ir/view/fa/articlepage/1044041/. [in Persian]
- Atashinbar, Mohammad. 2009. "Continuity of Identity in the Urban Landscape." *Bagh-e Nazar Research Institute* 6(12): 45-56. https://sid.ir/paper/125581/fa. [in Persian]
- Eshrati, Parasto. 2016. "Developing a Theoretical Framework for the Concept of Cultural Landscape with Emphasis on the Conservation of Isfahan's Historic Urban Landscape." PhD thesis, University of Tehran, Fine Arts Campus, Faculty of Architecture. [in Persian]
- Fayyaz, Ebrahim, Hossein Sarfaraz, and Ali Ahmadi. 2011. " Semiotic of Cultural Landscapes in Cultural Geography; a Conceptual Approach for Detection and understanding Meaning." *Tahghighat-e-Farhangi* 4(4). https://www.jicr.ir/article_185.html. [in Persian]
- Feizi, Mohsen and Ali Asadpour. 2013. "The Process of Recreating the Landscape of Tehran's Squares with the Aim of Enhancing Citizens' Social Interactions." *Metaleate Shahri* 7: 3-14. https://www.sid.ir/paper/512652/fa. [in Persian]
- Feizi, Mohsen, and Mehdi Khakzand. 2008. "The Landscape Architecture Design Process; From the Past to the Present." *Bagh-e Nazar* 5(9): 65-80. https://sid.ir/paper/125350/en. [in Persian]
- Hemmati, Morteza. 2015. "Adaptability; A Design Approach in a Chaotic Environment." *Manzar* 32: 74-81. https://www.noormags.ir/view/fa/articlepage/1173191/. [in Persian]
- Jokilehto, Jukka. 2008. *"The History of Architectural Conservation."* Translated by Mohammad Hassan Talebian, and Khashayar Bahari. Tehran: Rozena Publications. https://www.iccrom.org/sites/default/files/ICCROM_05_HistoryofConservation00_en.pdf. [in Persian]
- Karimi Makhzar, Mehrdad, Hassan Sajjadzadeh, and Hossein Torusheh. 2019. "The Relationship Between the Height of Tall Buildings and the Mental Health of Citizens; Case Study: Saeidieh Complex, Hamadan." *Metaleate Shahri* 33: 51-62. https://urbstudies.uok.ac.ir/article_61310.html. [in Persian]
- Kavian, Mojtaba. 2016. Cultural and social studies of the special project of Boshroyeh. Research project with the participation of Pishahangan Amayesh, Ministry of Roads & Urban Development Islamic Republic of Iran. [in Persian]
- Kavian, Mojtaba, Mohammad Masoud, and Mohammad Hassan Talebian. 2020. "Explanation of Integration in Landscape; A New Conceptual Model." *Journal of Architectural Thought* 4(7): 207-28 https://sid.ir/paper/399375/en. [in Persian]
- Karimi Moshaver, Mehrdad, Hassan Sajjadzadeh, and Salman Vahdat. 2015. "Measuring the Priorities of Reading the Landscape of Urban Spaces from the Perspective of Citizens (Case Study: Hamadan Urban Squares)." *Bagh-e Nazar* 12(37): 3-14. https://ensani.ir/fa/article/354720/. [in Persian]
- Mahan, Amin, and Seyyed Amir Mansouri. 2017. "Developing a Landscape Assessment Model (With a Review of Current Landscape Assessment Methods and Approaches)." *Bagh-e Nazar* 14(56): 33-42. https://www.sid.ir/paper/512977/fa. [in Persian]
- Mahan, Amin, and Seyyed Amir Mansouri. 2017. "The Concept of Landscape with Emphasis on the Views of Experts in Various Fields." Bagh-e Nazar Research Institute 14(47): 17-28 https://sid.ir/paper/125673/en. [in Persian]
- Makhzoumi, Jala. 2015. "Ecology; Landscape and Ecological Landscape Design." *Manzar* 32: 52-59. https://www.noormags.ir/view/fa/articlepage/1173188/. [in Persian]
- Malek, Niloufar. 2013. "A Comparative Study of the Concept of Methodology and Theory from the Perspective of Quantitative and Qualitative Research with Emphasis on Theorizing in Architecture." *Sientific Journal of Motaleat-e Tatbighi-e Honar* 3(5): 117-129. https://sid.ir/paper/205382/en. [in Persian]
- Paziresh, Reza, and Zeenat Nosratirad. 2012. "Protection of Cultural Landscapes and Related Legal and Organizational Frameworks at the National and International Levels." *Payam-e Sabz* 104. https://www.magiran.com/volume/75778. [in Persian]
- Pouryusofzadeh, Sara, Mohammad Reza Bemanian, and Mojtaba Ansari. 2012. "Criteria for Landscape Restoration of Historical and Natural Sites with Emphasis on the Bisotun Site of Kermanshah." *Bagh-e Nazar* 22: 35-44. https://www.sid.ir/paper/125495/fa. [in Persian]
- Stephenson, Jacquelin. 2008. "The Cultural Values Model: An Integrated Approach to Values in Landscapes." *Landscape and Urban Planning* 84(2): 127-139. ISSN 0169-2046.
- Tahbaz, Mansoura. 2003. "Beauty in Architecture". *Soffeh* 37: 75-97. https://soffeh.sbu.ac.ir/article_99920.html. [in Persian]

- Yang, Hongfei, and Joachim Stoeber. 2012. "The Physical Appearance Perfectionism Scale: Development and Preliminary Validation." *Journal of Psychopathology and Behavioral Assessment* 34(1): 69-83. https://doi.org/10.1007/s10862-011-9260-7
- Zandi, Marjaneh. 2014. "Urban Behaviors; Breakpoints in Tehran's Cultural Landscape." *Manzar* 28: 18-23. https://ensani.ir/fa/article/345713/. [in Persian]

HOW TO CITE THIS ARTICLE

Kavian, Mojtaba, Mohammad Masoud, and Mohammadhassan Talebian. 2025. Definition of a Mechanism for Measuring Integrity in Historical Urban Landscapes Based on the Concepts of Wholeness and Evolution; Case Study: Historical Urban Landscape of Boshruyeh. *Armanshahr Architecture & Urban Development Journal* 18(51): 99-121.

DOI: 10.22034/AAUD.2024.469842.2905
URL: https://www.armanshahrjournal.com/article_221449.html