Improving Urban Contexts' Identity via Conducting a Smart Mechanism

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Abstract

This paper lays the theoretical foundation for a logical framework based on multiple design factors. In the first place, historical traces of cultural landscapes are referenced to re-establish a harmonized settlement in their environments. Here, culture, identity, and design are the agents, whereas the defined matrix of corresponding criteria becomes the medium, and the re-interpretation process will be the result. The matrix can play a critical role in the reconstruction and recovery processes, where it defines projects by matching its components with standards, client preferences, etc. The strategy contributes to digital heritage by identification, documentation, understanding, and communicating the original themes of the place through digital technologies. The design based on distinguished parameters would be extended through parametric design. This is how the digital technologies will enhance interpretation of original morphologies. Once the relevant criteria of a place are corresponded, re-interpretation mechanism conveys traditional (timeless) dimensions of a place into present and future. Thus, the new modifications will become heritage of their own era.

Keywords

Urban-architecture • Cultural landscapes • Sustainability • Identity

1 Introduction

Among dangerous consequences of abusing raw materials, informal settlements, and urban sprawl, the community's vulnerability to disaster risks has been proven to UNESCO (2016). Besides, when cities, which are already struggled with quick and unmanaged urbanization, are confronted to catastrophes and tensions, they will be even more stressed. UNESCO and World Bank (2018) assert that economic crises and low-quality strategies for urban developments have deteriorated urban decay, exceeding building density, mass housing, ruined public facilities, insufficient infrastructure, social class differences, and urban poverty.

In contrast, UNESCO (2016) ascertains that conserving properly the natural and historic landscape upon lessons from traditional knowledge and proficiencies substantially decreases subsequent disaster risks, consolidates the communities' resilience, and saves lives.

Contemporary cities seem to be heterogeneous and often similar to each other more than ever. Due to dependence of the resident's "sense of identification" to regionalism (Trancik 1986), the conception of "identity" is at risk of elimination because of the increasingly disparate extension of cities. UNESCO and World Bank (2018) find contemporary cities in urgent demand to manage complex social, spatial, and economic transformations. This urgency is for maintaining cultural associations to keep the associative values alive.

In order to provide suitable referencing to address complex challenges of contemporary cities, it is important to know the way dynamic cultural landscapes could be interpreted, negotiated, and represented and for whom. In other words, the way cultural practices and a place, its context, setting, and objects that are related needs more investigation.

2 Literature Review

By studying people's daily life, Chombart (1952) corresponded a spine that generates a coherent set of experience and results in a structuring backbone, which directs future urban development. That is why the trace of a city's plan, the design of its streets, is not due to chance. Rossi (1982)

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deduced that there is obedience to rules, whether unconscious or conscious. To this aim, calling historical fabrics "spontaneous" or "organic" is naïve (Rossi 1982) for it is due to lack of sufficient knowledge and scientific precision to scrutinize underlying themes behind them.

Since human civilization, an organized complexity has been generated that is in proportion with human's intellectual development level. Salingaros (2005) argues that in the last century, this process of complexity was denied, and instead there were attempts to reverse it. The simplistic modernist model has destroyed cities since then by eliminating urban complexity.

Despite continuous evolution of cities throughout history, their identity has remained untouched. Because a city is a diverse mix of people and processes, with its own "self-organizing dynamic" (Jacobs 1961). Here, UNESCO and World Bank (2018) believe that culture plays a key role as it is the enabler and driver of the social, environmental, and economic aspects of sustainable development. For this reason, they see culture central to urban "reconstruction" and "recovery" strategies and processes that are, respectively, necessary for "tangible" and "intangible" heritage restoration. Accordingly, "place-based" strategies and policies are applied in reconstruction processes, while "people-centered" approaches are utilized during recovery after a crisis.

In this manner, the city should be recognized as a "cultural construct" (UNESCO and WB 2018) worldwide. Accordingly, a city displays to UNESCO (2009) a relatively interconnected combination of correlations, which have been extracted from culture and identity of its people. In this context, Bianca (2000) refers to morphology as the fundamental forming parameters of urban form which have been drawn on interconnected, profound human attitudes comprising the real factors of corporeal expressions and are the origin of the immaterial attributes emerging through physical manifestation.

Therefore, following approach of Burra Charter (2013), understanding of a city's cultural importance must be prioritized before making policy for managing it. Besides, remarkable relationships between a group of people and their environment should be regarded, maintained, and not diminished. Any attempt that might eventually cause interpretation, reminiscence, and praising of these associations need to be surveyed and executed.

Although invention of new forms of replacement is useless, Smithson (1999) highly doubted whether if the challenge of re-identifying human with his place could be accomplished by reusing historical methods of house-groupings, street systems, open spaces, greenery, etc., since their social reality does not correspond to contemporary society. Ungers and Vieths (1999) add that the planning methods applied in the past can no longer offer strategies suited to today's cities.

UNESCO (2009) also acknowledges this phenomenon because historical social circumstances and cultures that have been terminated cannot be identically reproduced, whereas only analogous systems could be expanded again. The real challenge afterward is to produce fresh and alternative systems that permit revitalization instead of protecting traditions in museums or altering the landscape into an obsolete exterior museum. If traditional knowledge is rediscovered and available kinds of local knowledge are re-analyzed, resurgence of traditional knowledge might happen. Based on Ardalan and Bakhtiar (1973), this is achievable as cities and buildings, analogous to the forms of nature, have within them the heritage of their past and the seeds of their potential future. In this respect, Woods (1975) sees the new will not be realized separate from the present, but effectively as a method of relating to the present buildings.

Based on the English Heritage Historic Landscape Project by Fairclough (1999), prescriptions which intend to turn back to a previous landscape condition through any procedure of restoration are prohibited, as evolution and transformation will have created an unprecedented or improved persistent heritage. Along this approach, Fig. 4.1 demonstrates an attempt to deliberately transform a traditional fabric based on selected design parameters, which are recognized and introduced by designer's decision; access, density, typological pattern, urban block system, and land plot are the physical parameters as tools for this morphological transformation. This primitive attempt sets an example of how a traditional landscape can be transformed via design parameters of a place even in absence of a logical basis.

Here, the design approach is in correlation with ICOMOS (2017) that advocates predicted change, which would often be more convenient than freezing the historical condition, and it is presumably to be more sustainable in the long run. As for Avermaete (2005), this conception creates an open design whose urban structure must be articulated with its environment to settle properly in its urban landscape. The first figure encompasses the ways, while the second one comprises outline of open spaces. The spaces that remain between two figures are the boundaries for the buildings' spatial design. This attitude adjusts the project factors in correlation with the existing patterns. For this reason, the interrelation within various urban design scales—single building, street, neighborhood, and city—and their privacy scale, is reviewed.

The problem, however, is that those few number of design parameters are slected and applied to the project based on arbitrary decision of the designer, while the outcome could have been more sophisticated and inclusive had there been a predetermined rule for design parameters during the design process. That is why the outcome might

Table 4.1 Matrix of cultural landscapes by Ziyaee (2018)

Components of identity	Components of cultural landscape												
	Materials								Immaterials			Links	
	Natural forms				Manmade forms								
	Topography	Vegetation	Climate	Hydrography	Land shape	Access	Buildings	Furniture	Social beliefs	Behavioral pattern	Rules	Time and process	Technique and methods
Forms													
Functions													
Semantics													

not be regarded as a wholistic response to the place. In search for a logical basis, Ziyaee (2018) for the first time establishes a "matrix," whose factors are expected to not only represent the primary qualities of a place identity; but also, include comprehensive urban dimensions. She then combines components of cultural landscapes with the elements of the place identity into a matrix of cultural landscapes (Table 4.1).

Analysis of such matrix provides a preliminary vision about cultural aspects under analyzing urban site, and consequently, furnishes an active system of evaluating identity of the places. The matrix contributes design procedure through the interpretation mechanism where all related data of a reference place can be recorded based on a pre-defined framework that relates each single factor to the other one. It is concise and fundamental, yet basic and finite. That is why it needs to be developed furthermore, so that design can be extracted from the inserted data. To put it another way, in order the matrix could be applied during the reinterpretation process, other criteria should be added to it.

3 Research Methodology

The originality of the work is assured by conducting methodology of "tradition," as a timeless source of inspiration (Nasr 1987), which is conveyed from one generation to its descendants. UNESCO (1972) comprehensively defines tradition as a dynamic entity in response to a society's environment, its interplay between nature and its history, and bestows upon it a sense of identity and permanence.

UNESCO (2009) identifies significant historic periods and crucial themes attached to the landscape in order to perceive correlated specifications and features. Delicate historical study serves to comprehend the specific way in which the "landscape components" interrelate through time, place (space), and functional usage. In addition, this research distinguishes how functions and various processes depend on the landscape and its characteristics through time, involved groups, and the most effective landscape-forming incidents.

The recognized features represent to UNESCO and WB (2018) the urban landscape's thorough components that must be protected and administrated altogether to sustain the integrity of the place. Like an ecosystem, in case one of human-based or natural components is lost, the significance of other features, or in fact the whole site will be diminished. In any case, the landscape dimension and the importance of each feature to it determine the significance of individual features.

Comprehensive identification of features would inevitably lead to a logical basis to firstly relate them to each other as factors of bigger criteria and then integrate them. This systematic approach is particularly important to establish a multi-criteria framework of urban landscapes.

With detailed evaluation of relations between components of the matrix, minor formulas will be obtained. In case of formulating them all, "urban equilibrium" (Rossi 1982), as a theoretical interpretation of built form, will be obtained.

So far, the following criteria and their parameters or sub-factors have been identified:

A. **Identity**; Relph views identity as a basic concern in reference to the ongoing sameness and uniqueness of things in daily life of people. Identity enables differentiation of every unique object in comparison with the others and was divided into three interrelated components by Relph (1976):

I. Form: Any naturally existed or manmade environment.

II. Function: Events, occasions, and functional patterns of one locus.

III. Meaning: Shaped by reactions and experiences of people in a place.

B. **Cultural landscape**; UNESCO (2009) assumes all variety of emerging interactions between natural environment and mankind as cultural landscape. It entails special methods of sustainable land-use, with attention to specific features and limitations of the reference natural environment, and a particular spiritual bond to nature. Ziyaee (2018) groups its components in three categories:

Table 4.2 Manifold matrix of urban landscapes interrelates factors for interpretation (upper section) and re-interpretation (lower section)

I. Materials (Ziyaee 2018): Topography, vegetation, climate, hydrography.
II. Immaterials: Social reality (UNESCO 2009), behavioral patterns (ICOMOS 2017), history (ICOMOS 2017), rules (Ziyaee 2018), economy (UNESCO and WB 2018).
III. Links: Time and process (Ziyaee 2018), technique and ,ethods (Ziyaee 2018), archetypes and typologies.
C. **Design and planning** entails a change in its natural environment by adjusting to design background and contemporary standards. Therefore, planning phenomenon has to be a natural process, and the designer has to offer a stage for it as Siza (2015) believes designers do not invent anything, but transform reality. Its components assess design of a building from different aspects:
I. Access (ICOMOS 2017);
II. Architecture: Building's properties;
III. Landscape (ICOMOS 2017);
IV. Density: Built and population;
V. Urban block shape and size (Kouwenberg 2013);
VI. Land plot shape and size (Rossi 1982);
VII. Energy and sustainability.
D. **Project** features enable the possibility of defining a project respecting minimum standards, programmatic demands, maximum capacities of the project, preference of the client, etc. It is composed of the following:

I. Local prerequisites;
II. Urban design setting;
III. Constructional considerations.

The general matrix (Table 4.2) interrelates all sub-factors of main criteria to each other. Each parcel of this matrix acts as a code of analysis. The main four criteria—and their sub-factors—are categorized to be interrelated two by two, depending on their relevance. The upper section of the matrix serves for "interpretation" of an urban landscape by coinciding the components of *identity* with components of *cultural landscape* and *design & planning*. On the other hand, "re-interpretation" of the same original landscape into a project will be achieved by coinciding the components of *project* with components of *cultural landscape* and *design & planning*. Similar to physics, "form-to-formula" logic reverses to "formula-to-form" work basis. Thus, the work combines theoretical research with empirical procedures. The new matrix not only accords with the matrix of Ziyaee (2018), but also upgrades it to a more complex version upon which design can be based.

Following objectives of *digital heritage* by UNESCO (2003), the next step is the use of digital technologies to facilitate the interpretation and re-interpretation processes. On the one hand, aerial and satellite documentation can capture, store, manipulate, and represent data during the interpretation process. On the other hand, "parametrics"
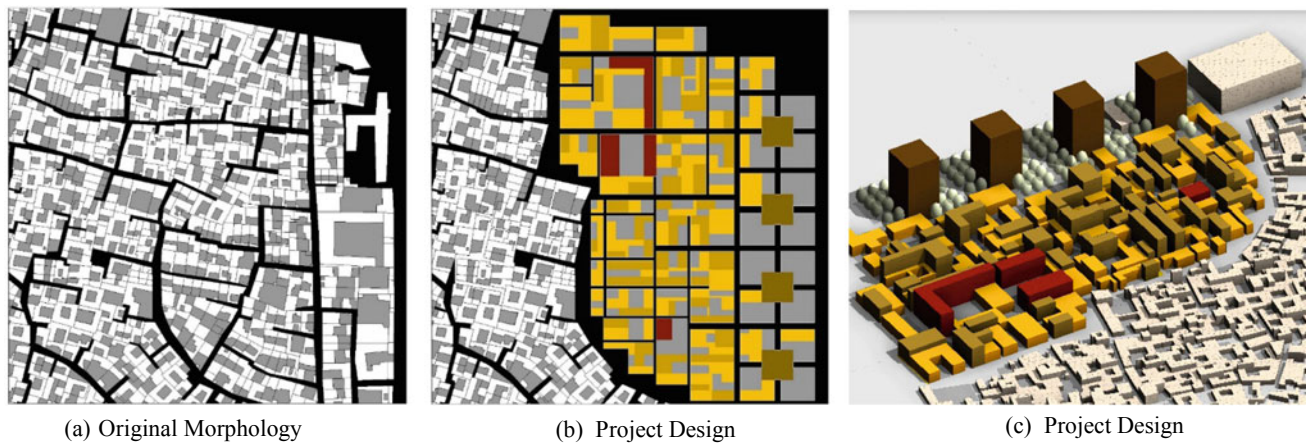
(a) Original Morphology   (b) Project Design   (c) Project Design

Fig. 4.1 A contemporary re-interpretation of traditional morphology by reformulating contextual parameters, which are traditionally associated in design of the historical fabric. The design strategy was to transform the residential fabric into a new iconic urban landscape where embodies a university within it. Shiraz, Iran (Sadrinia 2018). Legend: ■ Open space, ▨ Courtyard system, ▨ Intervention—low height, ▨ Intervention—mid rise (3–5 Levels), ■ Intervention—high rise (5–14 Levels), ■ Large-scale public

(Simitch et al. 2014) provides sufficient technological equipment to form the input data into a multi-criteria design. In this way, the re-interpretation procedure will be feasible. Through the junction between digital heritage and urban landscapes, it will be possible to debate about the relationship between the cultural and natural past, present, and future.

4 Conclusion

The primary objective of this paper is to establish a logical framework based on conventional design rules that have been extracted directly from referencing cultural landscape. It is to preserve legacy of previous generations in order to design through state-of-the-art technology of twenty-first century for the next generations. The achieved matrix is the advanced version of its precedent by Ziyaee (2018) that incorporates local design parameters to obtain spatial planning proposals as well as urban-architectural-scale design solutions.

The following work step will be to manipulate documentation, understanding, and communication of factors of places by means of cutting-edge digital technology. In the end, the digitally formulated matrix contributes to the knowledge of architecture and urban design by moving design procedure another step forward, where it becomes a "smart mechanism." This mechanism restricts arbitrary decision-making for a place, while proposes best design alternatives that comply with all factors of its matrix. This forward-looking recovery strategy would lead to creation of new heritage and establishment of new institutions.

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