

SOCIAL AND SPATIAL PATTERNS: ¹

A COMPARATIVE STUDY BETWEEN TWO PUBLIC SPACES IN THE CITY OF QUITO.

PATRONES SOCIALES Y ESPACIALES: A COMPARATIVE STUDY BETWEEN TWO PUBLIC SPACES IN THE CITY OF QUITO.

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El espacio público es el escenario idóneo para analizar y evaluar la correlación existente entre el comportamiento y las condicionantes morfológicas en la estructura urbana. Esta relación entre el comportamiento de habitantes y la configuración espacial se experimenta como un resultante social. Desde esta perspectiva, se percibe el éxito del diseño urbano desde la capacidad que tiene de conciliar las condiciones espaciales con las alternativas que permite a las relaciones colectivas, desde una relación estrecha y bidireccional. De acuerdo con los estudios urbanos sobre aproximaciones morfológicas, a partir de la segunda mitad del siglo XX se reconocen dos configuraciones formales: primero, la que se identifica como esquema de ciudad tradicional, en tanto entender las ciudades como estructuras interconectadas de edificaciones, por lo que los vacíos que quedan entre ellas son los que configuran las manzanas; segundo, la denominada funcionalista, cuya configuración de edificaciones comprende una disposición libre y aislada en el espacio, generando esquemas indefinidos (Carmona, 2010, p. 77). Esta investigación presenta un estudio comparativo de análisis para los espacios públicos, el cual conjuga estudios relacionados con tipo-morfología de la ciudad y tratados cruciales sobre el comportamiento en los espacios públicos. Se evalúan los patrones espaciales y de comportamiento en dos áreas en la ciudad de Quito, Ecuador: por un lado, una plaza en el Centro Histórico con un esquema tradicional: Plaza “La Merced”; y por otro, un espacio urbano con un esquema funcionalista: Plaza “La República”. El estudio se enfoca en la generación de información diagnóstica que proviene directamente de la observación sobre el comportamiento social y el análisis de los elementos morfológicos del espacio estudiado. Finalmente, este estudio contrasta la revisión de condiciones espaciales específicas de un lugar con las dinámicas de comportamiento de sus habitantes.

Palabras clave: diseño urbano, comportamiento urbano, morfología, Quito, espacio público

The public space is the ideal scenario to analyze and evaluate the correlation between behavior and morphological conditioning factors in the urban structure. This relationship between the behavior of inhabitants and the spatial configuration is experienced as a social result. From this perspective, the success of urban design is perceived from the capacity it has to reconcile spatial conditions with the alternatives it allows for collective relations, from a close and bidirectional relationship.

According to urban studies on morphological approaches, from the second half of the twentieth century two formal configurations are recognized: first, one identified as the traditional city layout, understanding cities as interconnected structures of buildings, with the gaps between them forming the blocks; second, the so-called functionalist, whose configuration of buildings includes a free and isolated arrangement in space, generating undefined layouts (Carmona, 2010, p. 77).

This research presents a comparative analysis study for public spaces, which combines studies related to the city's type-morphology and crucial treatises on behavior in public spaces. Spatial and behavioral patterns are evaluated in two areas in the city of Quito, Ecuador: on one hand, a square in the Historic Center with a traditional layout: Plaza “La Merced”; and on the other, an urban space with a functionalist layout: Plaza “La República”. The study focuses on the generation of diagnostic information that comes directly from the observation of social behavior and the analysis of the morphological elements of the studied space. Finally, this study contrasts the review of specific spatial conditions of a place with the behavioral dynamics of its inhabitants.

Keywords: urban design, urban behavior, morphology, Quito, public space.

I. INTRODUCTION

Cities host forms of collective life that would not be possible without their particular spatiality, manifesting the connection between the materiality of space and the unpredictable flow of human interaction. The city shapes the codes of coexistence in the private sphere and, simultaneously, is influenced by the usual practices in the public sphere; thus, connecting acts of the past, present, and future (Netto, 2017). The private sphere is considered conservative in the face of the reproduction of cultural patterns, while the public space generates them (Hillier & Netto, 2002). The objective of this article is to evaluate the correlation there is between human behavior and the morphological conditioning factors of urban structures.

This research, carried out in Quito, presents a comparative study of public spaces, where typo-morphology and behavioral variables are combined. The areas analyzed are the result of different urban structures. As an initial hypothesis, the typo-morphology and formal variants at a pedestrian scale enable or restrict behavior patterns regardless of the functional variables of the place (land use and zoning).

This work initially lays down a theoretical framework that presents public spaces as ideal places to assess built structures, in contrast to the way people behave. The ideas of 1) the inhabitant, 2) the model, and 3) the language, are worked upon as the necessary constructs for a comprehensive understanding of the complex reality of the city. Then, two urban city squares of Quito are presented, as case studies for spatial evaluation, following the typo-morphological perspectives established by Carmona (2010), namely, a traditional perspective opposed to a functionalist one. After this, the methodological proposal of the theoretical correlation between spatial and social elements is presented, as such this organized information structure constitutes the essential contribution of the study. The results section presents and summarizes the research findings, while in the discussion, recommendations are established in terms of alternatives called urban scenarios. Finally, the conclusions encapsulate the findings considering the original quandary. The study of the morphological elements of urban space, as well as information on the behavior of people in the public sphere is a broad although incipient concept in Latin America, and has been viewed in greater depth from different academic positions over time, mainly in an Anglo-Saxon context.

Plaza La Merced (La Merced Square), located in the Historic Center, with traditional morphological patterns, is compared with Plaza La República (La República Square), with a functionalist urban perspective associated with

the Modern Movement. Both spaces are a canvas for recognizing social patterns, which, following Forty's theoretical line, are independent of the concept of use, function, and aesthetic categories in both urban and architectural terms (Forty, 2000; Netto, 2017).

II. THEORETICAL FRAMEWORK

Squares are one of the most relevant elements of urban form, both because of their intrinsic representativeness fostered by their topological and spatial form, and because of their links with relevant buildings (Norberg Schulz, 1980). These elements have identity conditions that transcend their morphological principles, manifesting the characteristic features of a society at a given time and space (Norberg Schulz, 1995). Thus, a certain spatial model reacts differently at different times. A space can be read in a denotative and connotative way, with the morphological and spatial definition being as important as the communicative and symbolic value. These readings are neither static nor hierarchical, moreover, their interpretation varies over time (Eco, 1971). These semiotic reconfigurations in Quito can be analyzed from three approaches: 1) inhabitant, 2) model, and 3) language. The choice of these approaches considers the typo-morphological conditions related to the idea of spatial patterns (represented in the model), integrating the inhabitant as an agent that interferes with social patterns. In addition, it incorporates a semiotic reading (an intangible), considering all of them as elements that affect the performance of the urban space.

Inhabitant. The inhabitant of a square acts in a temporal frame, which allows occupying the space in lapses of time and diverse ways. This temporality is not only related to everyday performance but is also linked to the meaning of the inhabitant's collective imaginary, in the sense that, while in Renaissance layouts work is done under the principle of building an ideal city, where the square acquires great representativeness, in modernity, we break with the historical city and work with approaches based on functionalism and spatial division. As a result of these transformations, the mode of appropriation of public space by the inhabitant is also modified (Ayala-García, 2021). This recognition of the user as an inhabitant is achieved by affinity, both by the activity and the spatial conditions or by the significance of the place at a cultural level, allowing a collective vision of connection. The production of public space should be understood as an open process of a dynamic and flexible condition, which meets the relational demands of the inhabitant and not the other way around (Silva-Roquefort & Muñoz, 2019).

Model. Talking about a model for squares has a distinctive feature since these are configured regarding a topological character, with greater flexibility to the place, which operates in a vacuum (Lynch, 1998). In Quito, except for some squares, the result of the colonial checkerboard, there are no rigorously reproduced morphological “types”, but spaces that adapt to the topography or heterogeneous situations, causing a catalog of dissimilar results.

Language. The semiotic structure based on the denotative and connotative values is built on the characterization of activities, the appropriation, and the way of “using” was is public in Quito. It is pertinent to distinguish between spatial concreteness and the use made of it. These connotative values unite the spatial component with the event that happens in said space (Augé, 2000).

The typo-morphological configuration of the squares will be a fundamental component in the freedom relative to the activity or vocation of said spaces. Likewise, a more ductile configuration will allow greater ease of adaptation to social demands. Regarding the meaning and symbolism, one of the characteristic factors of the public space is to be a unifying symbol of a certain social ensemble (Augé, 2000), considering not only the isolated public space but its surroundings, which recurrently house buildings linked to nuclei of power, public representativeness, and monumental in nature. These characteristics in the public space demonstrate the characteristic traits of a given society that are evident when they transcend the purely functional study. This is why the study considers: 1) spatial patterns, and 2) social patterns.

Spatial Patterns

This research studies the formal structure of the city considering four aspects of public space design: urban form in terms of typo-morphology, confinement and positive space, the symbolic and utilitarian elements (true city), and the definition of urban interfaces.

Carmona (2010, p. 77) defines the formal structure of cities as the set of physical elements resulting from a process of growth over time. The configuration of urban space is determined through the classification of buildings and open areas in cities (Moudon, 1994, p. 289).

The concept of spatial confinement is presented as the geometric and proportional relationship between the width and height of voids and buildings; that is, the spatial relationship between the built and the open spaces (Carmona, 2010, p.183). Booth (1983) analyzes the parameters of spatial containment of elements in the landscape, establishing a structure of several configuration possibilities called positive space from the geometric relationship between the empty

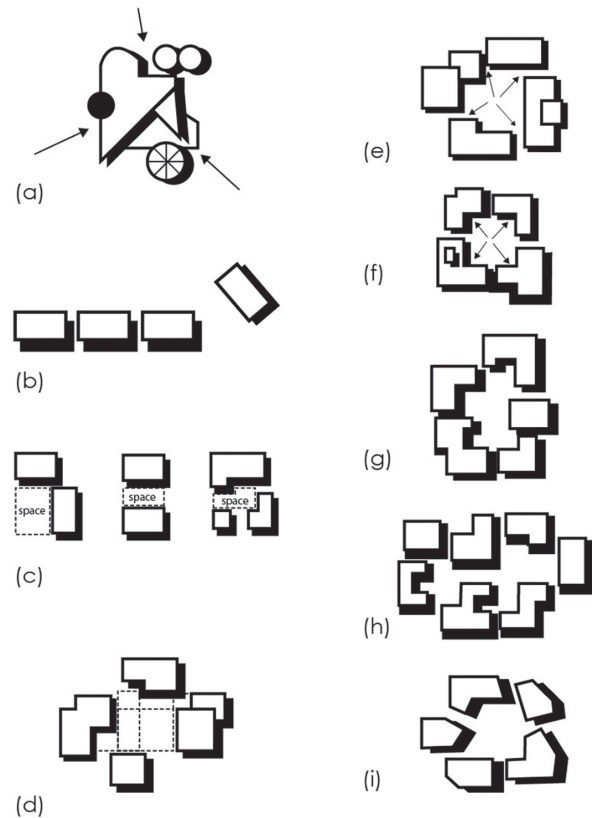


Figure 1. Spatial confinement. Source: Norman Booth, 1983.

space (the square) and the elements that contain it (the surrounding buildings) (Figure 1). Booth shows that the results, in terms of urban form, have a direct influence on the experience and use of space. Contemporary authors agree that the controlled and proportionate condition of confinement is a necessary feature for the design of urban spaces that are appropriately adapted to social dynamics (Carmona, 2010; Dovey, 2016; Gehl, 2011).

The study of architectural typologies as determinants of city configuration is key to investigating urban typo-morphology. The implication and direct connection of these elements are evidenced in the studies carried out by Rob Krier (1990), who presents a formal classification of spaces based on three basic forms where different modulation and modification factors are applied. The square and the street are defined as the two fundamental elements to study urban space, establishing a correlation between architectural typologies

and urban structures. In turn, León Krier (1990) defines the city as a structure of buildings in a so-called *true city* organization, comprising elements in two layers: a *public network* of buildings with symbolic and civic value; and a *private network* of buildings with utilitarian value.

This research also uses the concept of urban interfaces to evaluate the spatial characteristics of boundaries between public and private spaces. Dovey (2016) defines four characteristics that determine the possible relationship between these boundaries: permeability, transparency qualities, the setback of the building in terms of location, and the use vocation of the place. Analyzing the conditions of the space with the interface criteria emphasizes the importance of correlating the architectural scale and its implication in the use of urban spaces (López & Vaca, 2018).

Social Patterns

Behavior in spaces has universal patterns that typically happen in the subconscious following social constructs (Lang, 1987, p. 145). The information on dynamics is usually not considered a determining component for urban design (López & Vaca, 2018). Behavior has been studied extensively in branches of social sciences. Although this research focuses on issues related to territoriality, spatialization, and activities in the public sphere, the evaluation of these spaces also considers the relationship with action patterns. It is possible to establish that spatial characteristics favor certain behaviors and social dynamics do not have a deterministic character (Psarra, 2009, p. 3).

Edward T. Hall (1966) determined different types of interactions related to the distance they maintain, considering cultural differences and the different ways of using public spaces. According to his research, Hall coined the term *proxemic* to define the perspective determined by the distance that human beings maintain from each other when an activity or interaction occurs (Hall, 1963, p. 103). Hall establishes four possible distances in terms of proxemic: intimate, personal, social, and public (Altman & Wohlwill, 1977, p.184; Dovey, 2016, p.40). The specific values for each proxemic distance have a variation (closeness or amplitude) considering the specific cultural constructs.

A study based on the research of Habermas (1989) determines that there are three types of behaviors in the public space: the public of the public sphere, the public of the private sphere, and the private of the private sphere (Liao, et al., 2012, p.6). Collective identity is shown in public behavior in the public sphere; namely, actions in the space in political terms and of cultural exchange. As for public behavior in the private sphere, this is dedicated to the dissemination of ideas of private interest in collective places. Finally, private behavior patterns in the private sphere are the most frequent in urban spaces,

and according to Gehl, they are the basis of collective citizen exchange (Gehl, 2011, p.11).

An essential concept to evaluate behavior in public spaces is privacy because the perception of space quality depends on the user's ability to obtain different levels of intimacy in their relationship with others (Lang, 1987, p. 156). Davis and Palladino (1997) define privacy perceptions as the ability of each person to regulate boundaries of interaction with others. Privacy levels are presented as options for interacting or not with others (Rapoport, 1977, p. 261). Proximity dynamics are flexible perceptions that regulate interactions with varying degrees of control from isolation to agglomeration.

The urban form and its direct relationship with human behavior have been widely studied in recent decades. However, the approaches vary depending on the nature of the research. The relationship of urban form with well-being has been studied in research such as that of Mouratidis (2018), which looks deeper into the influence of urban morphology on social life. The relationship of morphology with public health and physical activity has also been investigated (Fathi et al., 2020; Ariza-Villaverde et al., 2014), also considering comfort and appropriate temperatures to enjoy the public sphere, as in the studies of Zhang et al. (2022). Some approaches process spatial, temporal, and usage data to establish patterns of psychological changes in people living in urban environments (Ojha et al., 2019). Recent studies analyze the influence of built environments and human behavior with artificial agents and data management (Ciardo et al., 2022).

On the other hand, some studies of morphological structures have also focused on the intensity of activities in the city. Works such as those of Kurniasanti et al. (2018) and Kang et al. (2012) look into movement patterns and preferences within the urban environment and others analyze the intensity of formal and informal activities in the built environment. Similar studies present the specific relationship between morphology, lifestyle, and life decisions of people, and the decision process in terms of local and global mobility (Adolphson et al., 2022). Finally, the theoretical and methodological branch of space syntax has contributed through research on morphological characteristics and social activity, mainly focused on movement flows and visibility between users (Gümüş & Yılmaz, 2022; Can & Heath, 2016; Rashid, 2019). It should be mentioned that the literature in English is extensive, but studies in Latin America are scarce, and particularly in Ecuador this topic has not been addressed in academic studies.

III. CASE STUDY

This work presents a study of two public spaces in the city of Quito, Ecuador: a square in the Historical Center with a traditional perspective: Plaza "La Merced"; and a second

SPATIAL PATTERNS		SOCIAL PATTERNS	
Urban Form	Street patterns	* Social patterns are not recognizable on this scale of study	
	Blocks		
	Lots		
	Buildings		
Spatial Confinement + Positive Space	Confinement	Privacy	Types of behavior in public spaces
	Positive Space	Proxemic	Interpersonal distances. Distance relationship for use of public space
		Types of activities	Public sphere
			Private sphere
Scope of the public authority			
Interfaces	Interfaces Study of the physical boundaries between public and private spaces.	Privacy	Types of behavior in public spaces
		Proxemic	Interpersonal distances. Distance relationship for use of public space
		Types of activities	Public sphere
			Private sphere
Scope of the public authority			
Elements of the real city	Symbolic elements	Privacy	Types of behavior in public spaces
	Utilitarian elements	Proxemic	Interpersonal distances. Distance relationship for use of public space
		Types of activities	Public sphere
			Private sphere
Scope of the public authority			
URBAN DESIGN RESULTS			
Related morphological element		Types of activities in the public space	
Urban Form + Confinement + Geometry + Interfaces		Proxemic + Flows + Activities + Types of Activities	

Table 1. Outline of a methodological proposal to evaluate public spaces. Source: López & Vaca, 2021. Preparation by the authors.

public space with a functionalist perspective: Plaza de “La República”. The choice is based on the definition of urban spaces in terms of typo morphology, namely a *traditional* space and another *functionalist* one (Carmona, 2010, p.77).

A review was made using field information and on-site mapping, where the temporality of the places is recorded 24 times in 2018 and 2019, on two days (weekend and during the week), and three times during the day (morning, mid-afternoon, and evening). The data recording period is one hour, therefore, the resulting maps are a static record of the life of that particular square during a specific period. The relevance of the case study choice is based on a comparison of equivalent urban elements in scalar terms, but with clearly differentiated vocations and urban design guidelines. Plaza La República is one of the few

examples of a functionalist square in the city of Quito, while Plaza La Merced is one of the few urban traditional structure perspectives that has not undergone major changes in the 20th century.

IV. METHODOLOGY

The spatial response of urban design should be understood as the result of the contrasted study that considers the morphological perspectives of cities and the behavioral dynamics of their inhabitants. This study of the evaluation of public spaces through a spatial analysis uses a series of theoretical parameters of morphological values, as well as social patterns and dynamics (López & Vaca, 2018).

Plaza La Merced



Centro Histórico de Quito.
Esc. 1 : 2500



Figura - Fondo. Centro Histórico de Quito.
Esc. 1 : 2500

Plaza de la República



Ciudadela Larrea - Quito.
Esc. 1 : 2500



Figura - Fondo. Ciudadela Larrea.
Esc. 1 : 2500

Figure 2. Spatial patterns. Urban fabric analysis. Source: López & Vaca, 2021.

For spatial patterns, the morphology, geometry spatial values, and element size are studied. In addition, the geometric relationships of proportion are analyzed to establish confinement and positive space, studying the city's interfaces, and its symbolic and utilitarian elements. As social patterns, the conditions of privacy, proxemic, and types of activities in terms of social spheres are analyzed (Table 1).

The identification of social patterns was done using a process based on observation and registration for a subsequent study of the flows, activities, proxemic distances, and the scope (public or private) of the registered activities. This process was carried out over periods of one hour at different times and days of the week to analyze the different behaviors depending on temporality.

V. RESULTS

The study of the urban structure and the comparison reveals obvious differences in the basic morphological configuration.

The studied squares were chosen because they are opposites in their original morphology: Plaza La Merced is the result of a reticular geometry, while Plaza La República is the result of the arrangement of an architectural object. The former has a structure typical of walkable and compact cities, while the latter evidences a configuration where roads take on greater importance than the public space (Figure 2)

The results obtained regarding the analysis parameters are shown below:

Urban form

The contrasting configurations (traditional and functionalist) do not reflect representative contrasts in the sizes and geometry of their lots and blocks. The biggest disparity in this scale is the predominant lot occupancy and architectural typology: the buildings in the Historic Center maintain the central courtyard typology, while around Plaza La República they are varied and respond to architecture from the proposals of modernity.

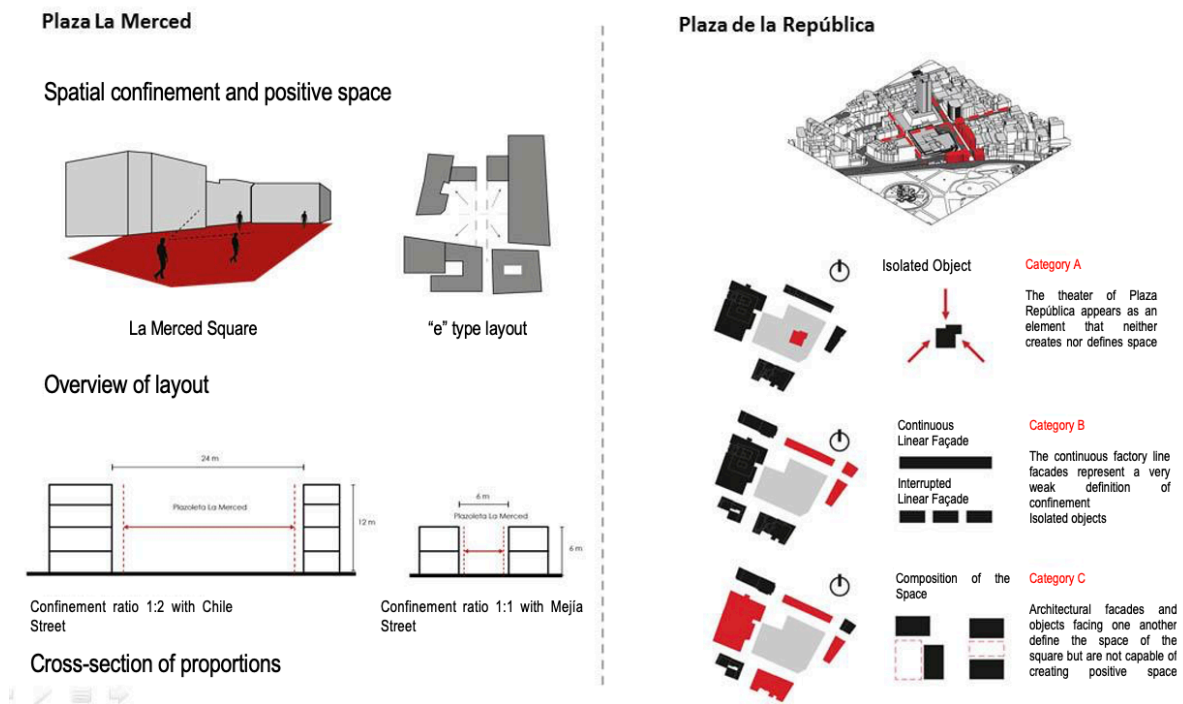


Figure 3. Spatial patterns. Comparative study of confinement. Source: López & Vaca, 2021.

Spatial confinement and positive space

The crucial contrast between the squares originates in the geometric configuration of the empty space and its surroundings. The geometric analysis of confinement reveals that in Plaza de La Merced, the buildings are grouped around a central space and the void (the square) is the center of the geometric composition. The facades overlap and leave gaps at the intersection of the streets, generating a high level of confinement. Therefore, it can be said that there is *positive space*.

On the contrary, Plaza La República is the entrance to the building that houses the Government of the Province of Pichincha. The 21-story building, built in 1980, marked a milestone in the city's architecture, especially its size, with a trapezoidal entrance volume that opens to the center of the square. These characteristics contrast an isolated reading of the building with its surroundings. Although the linear configuration of the adjacent facades defines a central space, this geometry does not create positive space. Plaza la República is a subordinate space to the building, which is not comfortable for extended stays. (Figure 3).

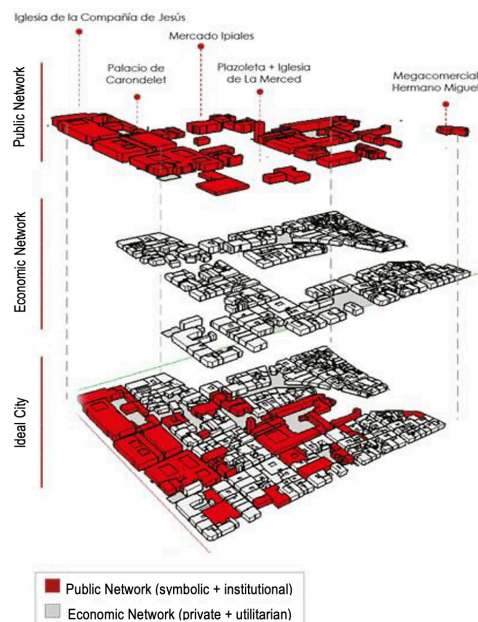


Figure 4. Spatial patterns. City components study - Plaza La Merced. Source: López & Vaca, 2021.

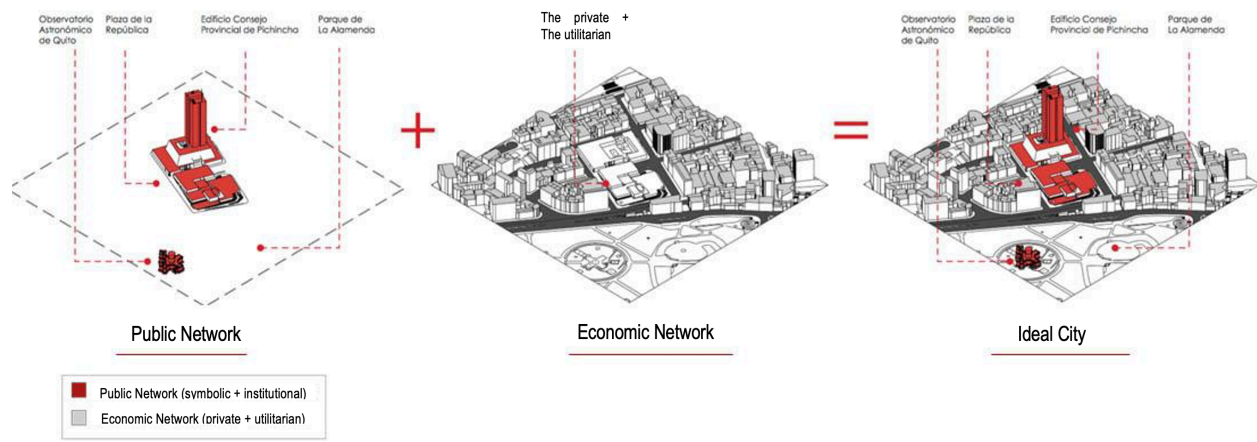


Figure 5. Spatial patterns. City components study - Plaza La República. Source: López & Vaca, 2021.

The contrast between the two squares is accentuated by making a geometric analysis with the sections of the surrounding streets, evidencing the proportion between the road and the square. In La Merced, it is related to pedestrian roads with a ratio close to 1:1, while in La República the ratio is obviously higher.

Elements of the real city

The Historical Center of the city, which houses Plaza de La Merced, has a greater number of architectural objects with a symbolic character than the Ciudadela Larrea, where the utilitarian network predominates. (Figure 4 and Figure 5).

Interfaces

The comparison does not show significant differences. Both squares are surrounded by transparent-accessible elements. A notable feature is the facade of the Church, which, although it is opaque along most of the part adjoining the square, is key for the configuration of the *positive space*.

Influence of morphological structure on social patterns

The data recording periods take place at 24 different times. The information is prioritized for four elements: flows, activities, proxemic distances, and types of behavior. Recognizing the temporality and ductility of public space

also shows that places react to the practices of different actors and, therefore, to various forms of appropriation of the place. The multiple temporalities reveal differences in frequency, duration, and interactions associated with spatial conditions. Momentary encounters, considered crucial for the city's vitality, are only possible because of the morphological organization that enables the convergence of actors immersed in diverse rhythms and activities.

The morphological configuration that allows the existence of the positive space makes the difference in the rhythm of flows and activities. The records in Plaza La Merced show that pedestrian flows are constant. The square and Chile Street merge into a place that operates both as a place of passage and stay, the busiest area being the southern section, where pedestrian flows are concentrated on the street. The northern section is a transition zone, that is not visited much due to the opaque and inaccessible facade of the Church. In contrast, the south side of the square is more active during the day, allowing diverse commercial and short-stay activities ranging from the private of the private interest to the public of the private interest. These activities are related to everyday actions and linked to individual interests. The presence of symbolic elements of the real city and the geometric proportion of confinement configures the square as a positive space, being accompanied by heterogeneous social patterns with varied proxemic distances, which evidence a good performance of the public space.

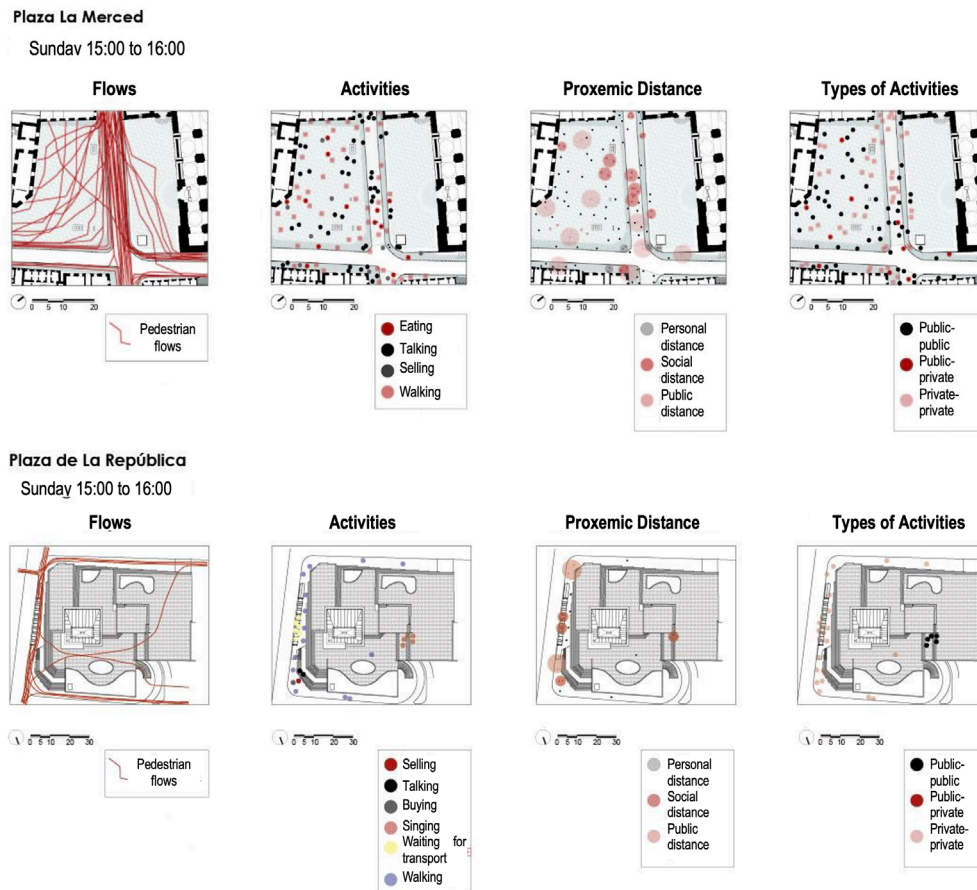


Figure 6. Social patterns. Record of Sunday from 15:00 to 16:00 - Plaza de la Merced and Plaza de la República. Source: López & Vaca, 2021.

These records show contrasting data in Plaza La República, which, despite being a busy site, evidences a perimeter use that is not accompanied by the flows of the sector where it is located. The initial design of the square generates an important unevenness compared to its surrounding streets being an entrance for the predominant architectural object and the plaza's road layout. These characteristics make the plaza a transitional space between 10 de Agosto Avenue and the Provincial Government building of Pichincha. The limited activity in the center of the square contrasts with the intense use of the surrounding sidewalks that host a variety of private and public activities of private interest.

The evaluation of the proxemic distances in Plaza La República shows that there are activities that allow intimate distance. However, most take place on the edges with personal and social

distances. The nighttime records show an inactive place, with little flow and informal activities. In contrast, La Merced Square has activities at personal, social, and public distances in the central part, evidencing that the square is where people stay. (Figure 6 and Figure 7).

VI. DISCUSSION

The comparative analysis between the squares reveals that their main difference is determined by the morphological structure, namely, by the physical configuration of the public space and the buildings that surround it. According to the initial studies of Booth (1983), the morphological pattern that marks the contrast is the presence of positive space and, therefore, the high sense

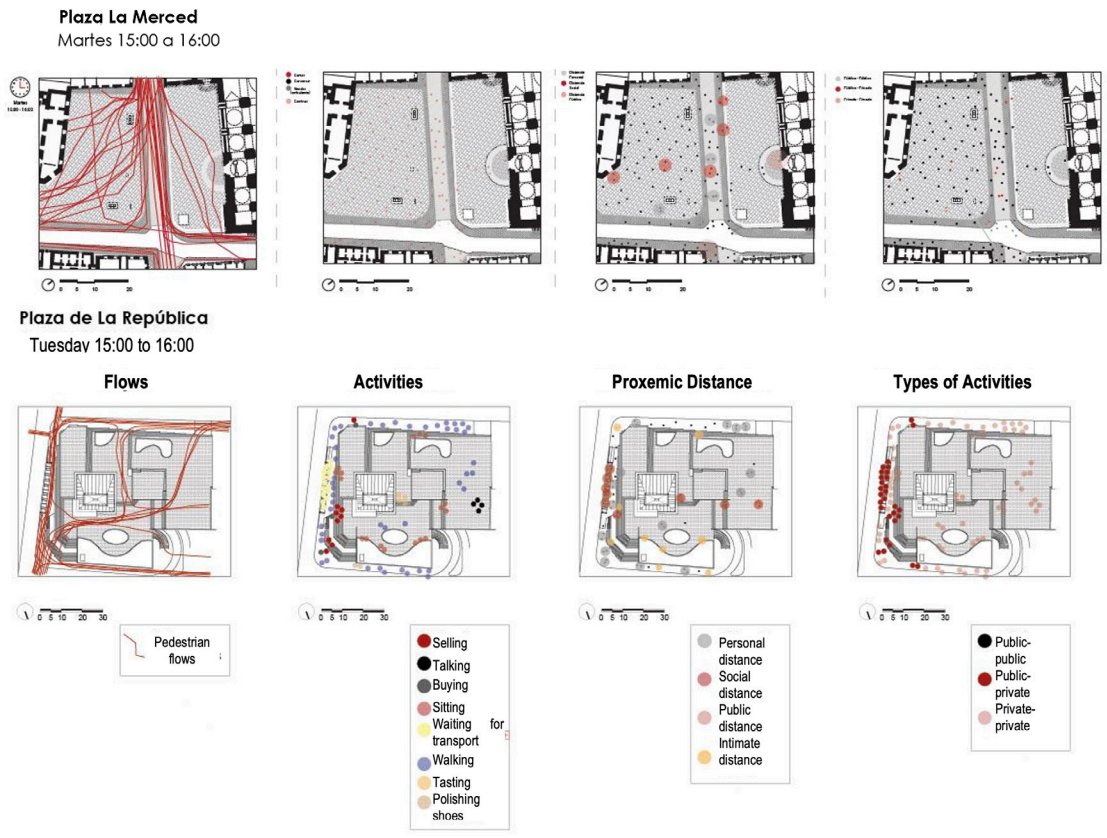


Figure 7. Social patterns. Record of Tuesday from 15:00 to 16:00 - Plaza de la Merced and Plaza de la República. Source: López & Vaca, 2021.

of spatial confinement, which is characteristic of long stays. In Plaza La Merced, behavior patterns associated with the private, introverted, and independent are promoted, as well as social patterns of a community and public nature. La Merced has morphological patterns that host a diversity of activities and intensity of use of the public space.

In Plaza de La República, on the other hand, limited social patterns are evident inside, with disproportionate relationships of spatial confinement and positive space. In contrast, there is a constant flow in the square's perimeter, since the public space is not considered a place of permanence and is faithful to the proposals of its functionalist design, as being a prelude to the predominant architecture of the place. This condition responds to what is described by Carmona (2010), where public areas in the functionalist perception, were designed as areas that operate

as a precursor to an architectural element, consequently, they constitute indefinite zones.

From the point of view of language, the space expresses the identity of the group (Augé, 2000). In this area, two practically opposite readings are observed concerning the findings: while Plaza La Merced constructs a notion of place, Plaza La República promotes a reading devoid of meaning. Plaza La Merced assumes an identity role from the historical dimension present in the layout or in the church since it relates the present and the past constituting a center with meaning (Ferrerias, 2021). Its morphological characteristics facilitate interaction, contributing to the construction of relational dynamics in the social setting.

In Plaza La República, the relationship of individuals with space is scarce and social interactions are almost non-existent. The

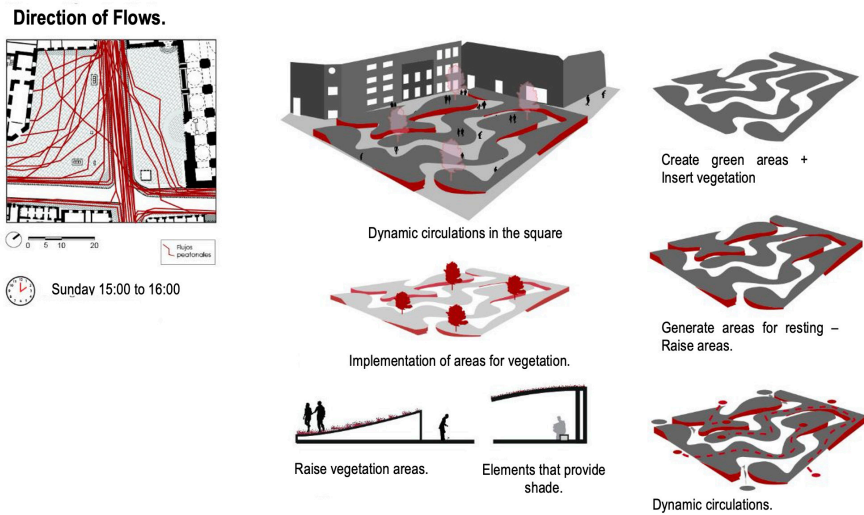


Figure 8. Scenario proposal number 1. Directionality of flows. Plaza La Merced. Source: López & Vaca, 2021.

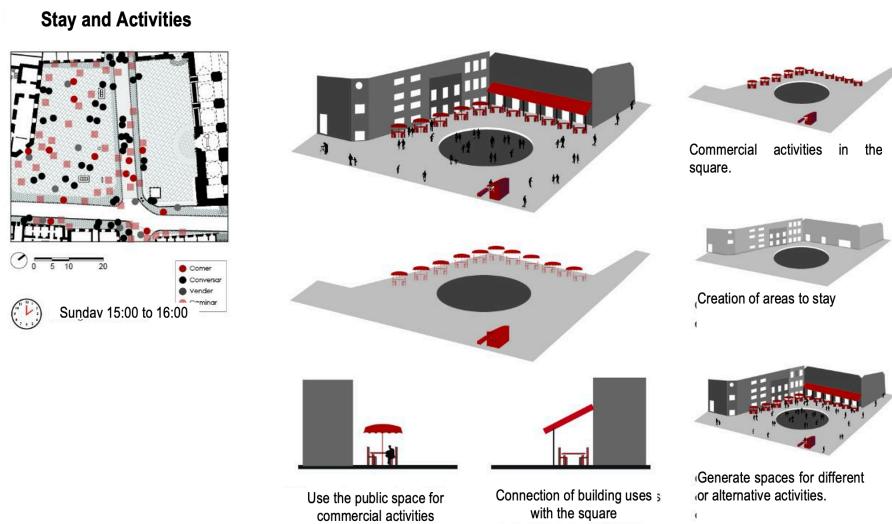


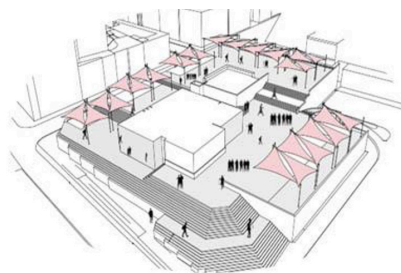
Figure 9. Scenario proposal number 2. Stay and activities. Plaza La Merced. Source: López & Vaca, 2021.

annexed location of the seat of the Government of Pichincha and the name of the square itself (in a clear nationalist allusion), are attempts at artificial identity construction, restricted to the physical-architectural plane. The space of the square is not unifying but is reduced to the coexistence of individuals motivated by a utilitarian and/or economic purpose (selling, waiting for public transport) (Krier, 1990). The non-appropriation of space promotes an enclosure of similarity, but not of identity (Augé, 2000).

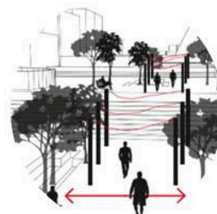
Plaza La Merced takes advantage of the pedestrian flows and generates an appropriate setup for the layout of urban furniture, with differentiation of the areas to stay and circulate. It is possible to arrange the areas of routes and stays in the public space considering the users' movement (Figure 8). Another possible recommendation as a scenario is to integrate commercial activities with the adjacent objects and resting spaces (Figure 9).

Confinement

Ratio 1:5



The space's design works on a human scale in the urban space.



Insertion of elements that promote confinement of space.

The space's design works on a human scale in the urban space.

Figure 10 .Scenario proposal number 1. Confinement. Plaza de La República Source: López & Vaca, 2021.

For Plaza La República and its main problems regarding geometry, the proportion of the void, and the layout of the architectural elements that do not form the perspective of positive space, the creation of positive space on a human scale is recommended. On one hand, a change of proportions and confinement with vegetation is suggested, while another possible alternative considers the construction of architectural elements as a boundary, to enhance the diversity of activities with different proxemic distances and increase flows in the center of the square. Newly built elements are understood as determinants that condition the behavior of space users (Altman & Wohlwill, 1977) (Figure 10).

VII. CONCLUSIONS

This research has evaluated the public space with a morphological approach, which has allowed correlating the information with its behavioral dynamics. The findings of this correlation arise between social and spatial patterns. The comparative study shows that the morphological configuration of the public space is directly linked to the behavior patterns, regardless of the regulatory and functional restrictions. Additionally, the geometric and spatial planning conditions are primarily grasped by the walking user. However, it is possible to optimize the public space to generate places to stay with transformations that not only radically modify the urban fabric, but also perform specific actions on a pedestrian scale. These considerations in morphological and behavioral terms constitute the diagnosis in terms of the performance of the public space. These are presented as recommendations for urban design decision-making (it is not an urban design exercise *per se*) and recognize that the city can be renovated despite its initial planning, in which the priority was marked by the optimization of road connections in the functional city. Both the study of the morphological aspects of space and the

behavior are extensive and have been deeply studied in the academic field; however, this research aims to contribute to the development of an integrated understanding, even though the findings may seem partial since the scale of analysis focuses on the elements of the built structure that form the square and the elements of a larger scale such as lot, block, and layout. Finally, this process allows showing that in the city of Quito, morphological structures are determinants of social patterns of appropriation and use of public space.

VIII. REFERENCIAS BIBLIOGRÁFICAS

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