URBAN VITALITY IN PUBLIC SPACES: A STUDY IN THE CITY OF PORTO, PORTUGAL

VITALIDADE URBANA NOS ESPAÇOS PÚBLICOS: UM ESTUDO NA CIDADE DO PORTO, PORTUGAL

Trícia Caroline da Silva Santana
Graça Correia Ragazzi

Abstract

This article aims to analyze the relationship between the spatial morphology and the perception of the users. The intention was to understand what aspects indicated by the literature are perceived by the users and how this influences the vitality of a public space. The case study included the use of site-based behavioral mapping, in-place physical surveys, as well as photographic records. The results showed that spaces to sit, the state of conservation and maintenance, the presence of afforestation and landscaping, the aesthetics of the place, besides the characteristics of the use of the surrounding land, are perceived by the users and are reflected in the ways of using the place. It is considered that, although the design elements and the combination of these elements are an enhancer in the uses, people's perception of the space and the environment in which it is found must be taken as a reference in the proposition of public spaces.

Keywords: Garden. Perception. Urban Morphology. Public Space.

Resumo

Este artigo se propôs a analisar a relação entre a morfologia espacial e a percepção dos usuários. O intuito foi compreender quais aspectos indicados pela literatura são percebidos pelos usuários e como isso influencia a vitalidade de um espaço público. O estudo de caso usou mapeamentos comportamentais centrados no lugar, levantamentos físicos in loco, e registros fotográficos. Os resultados mostraram que espaços para se sentar, o estado de conservação e manutenção, a presença de arborização e paisagismo, a estética do lugar, e as características de uso do solo do entorno são percebidos pelos usuários e se refletem nas maneiras de utilização do lugar. Considera-se que, embora os elementos projetuais e a combinação desses seja um potencializador nos usos, a percepção que as pessoas têm do espaço e do entorno em que ele se encontra deve ser tomada como referencial na proposição dos espaços públicos.

Palavras-chave: Jardim. Percepção. Morfologia Urbana. Espaço Público.

https://doi.org/10.11606/issn.2359-5361.paam.2019.159243
Paisag. Ambiente: Ensaios, São Paulo, v. 30, n. 43, e159243, 2019.

1. Introduction

The theme addressed in this article is urban vitality, a subject of great importance today, whose nuances can be discussed from references derived from fields of knowledge, such as Geography, Philosophy, Sociology and Psychology, among others. At the basis of the discussion are two important themes for understanding life in the contemporary city: (1) the so-called "crisis of public spaces", which denounces the marked depletion of places of collective living in the city; (2) the current debate on elements that promote the occupation of public space, which, in contrast to the previous idea, turns to the expansion of this use. Far from being antagonistic, such ideas complement each other and it is important to understand them together, as will be briefly commented below.

Common sense and specialized literature, such as Arendt (1991), Habermas (1984), Jacobs (2001) and Sennet (1988), among others, point out that, from the second half of the twentieth century, we witnessed the collapse of collective life in the public context, relegating important urban structures to disuse. As a result, many social practices that were characteristic of these spaces were directed to places that favor longer user stay by offering more comfort and safety, such as gated condominiums, exclusive clubs, shopping centers and theme parks. That is, the greater the possibilities of collective and recreational life in the private sphere, the greater the possibilities of devaluation of public spaces. In this sense, Caldeira (2000) comments that the so-called "fortified enclaves" directed at the consumption, leisure, work, housing and entertainment of the middle and upper classes (such as gated condominiums, shopping malls, business centers, clubs) are changing the landscape of cities, their norms of spatial segregation, the nature of their public spaces, and the interaction between diverse social strata. Confirming this condition, authors such as Gomes (2002) and Gehl (2006) argue that the search for security means that we currently experience changes in the use of public free spaces, leading to a decline in their use as a place of permanence, leisure, recreation and sociability.

Instead of addressing the crisis, other authors are dedicated to fostering discussion about the vitality of public spaces, turning to the places where it is found and to understanding the conditions that favor harmonious collective public experiences. In this sense, Gehl and Gemzøe (2002) argue that, part of the disuse, is linked to the impoverishment of public space projects, which do not accompany social changes. In addition, the authors discuss factors that need to be addressed for these environments to be able to accommodate collective social life, among which the importance of restricting vehicle traffic and prioritizing the occupation of spaces by pedestrians is emphasized.

Turning specifically to the design of public spaces, Yurgel (1983, p. 18) highlights the damage caused by the planners' adoption of a functionalist approach, which often "minimizes the importance of leisure as part of public policies and intervention needs programs", relegating it to the use of idle spaces. In this sense, the author emphasizes the need for professionals to: (1) understand leisure and recreation as essential activities for well-being and human development; (2) understand the public space as a privileged locus of this leisure, raising its planning to an essential item in urban politics.

In a kind of analogy to human vitality, the vitality of a space was understood as an indispensable element for health and city life, as an intermediate line between apathy and excitement. It is, therefore, the ability of animation due to the social relations that happen in a place, being conditioned by the morphological attributes of the environment, but also by the perception that its users have of it. Thus, it is assumed that there is a desirable type of vitality for each type of space, that is, that a commercial area requires a different kind of animation from that required for a residential sector, although some of the elements / attributes of that vitality may be valid for both.

Although the possibility of a direct relationship between the physical characteristics of public free spaces and their vitality is attractive, it has also been criticized, especially related to the fact that it is both a simplistic and deterministic idea, which disregards

the complexity and multiplicity of aspects that influence the urban dynamics (HOLANDA, 2011; NETTO, 2006).

Complementing the various approaches that discuss the use of public spaces and the promotion of vitality (morphological and sociological analysis, are some examples), there are studies focused on environmental perception that show that understanding about the functioning of a place passes, necessarily, by understanding the way its users perceive it. From this perspective, authors such as Tuan (1983) and Hall (1977) clarify that the perception of an environment establishes different ways for people to understand and experience it. Therefore, the information coming from the senses (sight, hearing, touch, smell, and kinesthesia) and the detection (by the user) of the receptivity to its presence produce different perceptions of the place, affecting the relations of this individual in it and with it. In addition, perception would also be influenced by location-related (individual and collective) memory, another aspect to be considered for proper understanding of a place (JODELET, 2005).

Articulating this argument and considering that the vitality of public free spaces can be understood from their morphology and the perception of their users, it is intended to understand which elements indicated in the literature the users perceive, with regard to urban vitality.

2. The Elements of Urban Vitality in Public Spaces

To discuss Carrilho Videira Garden as an empirical object of this article, one must consider the understanding as part of a broader set, such as the city's free space system, which implies attention to its spatiality (landscape, morphological and functional aspects), for the context in which it is inserted and for its connotation as one of the agents of social relations in the city.

Based on this premise, it is essential to understand what a free space system is, to further discuss the concept of square, the central point of this article. The notion of system is based on the gathering of elements that are parts of a larger whole (components) and that interrelate (or interact) with each other, each assuming its own function (FERRARI, 1997). Complementing this understanding, D'Agostini and Cunha (2007, p. 55) clarify that the notion of system implies attributing meanings to relationships and interrelated elements.

In turn, the literature most directly related to vitality is based on arguments not only linked to space, being linked to urban quality studies, and discussing the concept in at least two respects: (1) as an action, that is, the act of animating, giving life; (2) as a state, meaning the intensity of social life and its manifestations. The debate around these two possibilities defines indicators that give a broad idea about the ways of effective use of public spaces, analyzing the influence of their physical configuration on the presence (or not) of people in the place.

Thus, vitality can be understood as a condition of public space, with specific characteristics (which are the target of this investigation) that allow attracting and maintaining different users in its area (age group, gender, social status, marital status, etc.), at various times and days, performing the most diverse activities.

According to Holanda (2002), the use of public free spaces refers to the notion of people presence, ignoring initially the activities developed by them or the duration of their stay. This idea is also understood as co-presence which, according to Goffman (1966), manifests in individuals' perception that they are close enough to others to: (1) be perceived in whatever they are doing, including their experience with others; (2) that the awareness that one is being perceived by the other is itself perceptible. The presence of people in public free spaces is considered fundamental for the existence of a state of vitality, becoming a recurring theme of authors such as Jacobs (2001), Alexander *et al*. (1977), Whyte (1980) and Gehl (2006).

There is a wealth of propositions that focus on the squares' vitality, treating this element from its conception as a concept to the multiple ways of enhancing it in urban public spaces. Among

all the elements described, we indicate the following as those most incisive to this research:

1. Aspects relating to urban vitality:

- Co-presence of people at different times of the day;
- Performing multiple stay and passage activities.
- b. Aspects related to the space and its surroundings:
- Urban furniture and equipment that enable the development of multiple activities;
- Afforestation and landscaping as natural elements of space;
- Cleaning and conservation of the environment and its elements;
- Varied and well-positioned seating spaces;
- Environment with predominant residential use, but with the presence of distinct activities of commerce and service rendering;
- Existence of projects that encourage the flow of pedestrians in the surroundings – traffic generating poles (TGPs);
- Diversity in the operation time of non-residential real estate, allowing constant presence of individuals moving in public space;
- Real estate that opens to the public space through various openings, such as doors and windows;
- Presence of soft borders as transition zones between public and private;
- Accessibility on sidewalks that lead to the environment.

3. Methodology

Data were collected through case studies, which used: morphological analysis, systematic observation (site-based mapping) and photographic records.

3.1. Urban morphology

In the context of urban morphology, data were collected from on-site visits and consultations on maps and institutional documents provided by government agencies, satellite images obtained with Google Earth software, and aerial photos. Based on the literature adopted, the following variables were listed (Table 1):

3.2. Systemtized observations

In this research, we chose to conduct behavioral mapping (MP), which consists of naturalistic and systematic observations of the environment, recorded through graphical representations of human occupation in an area, relating physical space (which needs to be limited and divided into sections) and users behavior (PINHEIRO; ELALI; FERNANDES, 2008). In the work performed, the observed behaviors were recorded in an observation form, in which events were recorded at 10am, 4pm and 8pm and on two different days of the week (Tuesday and Saturday), in two weeks, during the month of October (Figure 1).

Table 1 – Theoretical-methodological references of the analysis of urban vitality.

SCALE	VARIABLES	WHAT ASSES / WHAT AUTHOR
IMMEDIATE SURROUNDINGS	Land use	Variety of activities (equipment feeding) Jacobs (2001), Gehl (2006), Whyte (1980)
	Use shift diversity	Variety of Users Gehl (2006), Whyte (1980)
	Soft borders	Public x private relationship; presence of transition zones; existing activities; and sense of security Gehl (2006), Alexander *et al*. (1977), Whyte (1980), Holanda (2002)
	Doors and windows	Visual accessibility and sense of security Jacobs (2001), Whyte (1980), Gehl (2006), Holanda (2002)
ENVIRONMENT	Furniture and equipment	Variety of activities and presence and variety of users Gehl (2006), Whyte (1980)
	Landscaping and Afforestation	Environmental comfort; aesthetics; and presence and variety of users Whyte (1980), Gehl (2002)
	Seating Spaces	Local amenities; presence; and variety of users Whyte (1980), Gehl (2002)

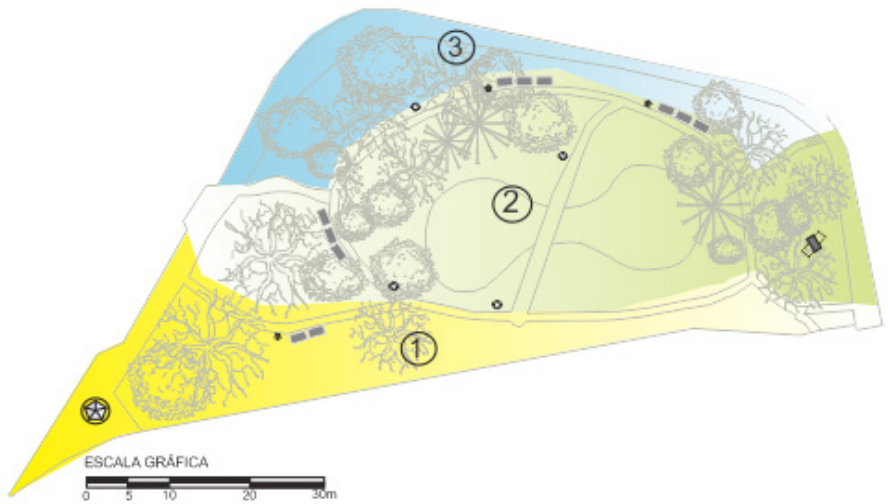

Figure 1 – Schematic ground floor with the demarcation of the sectors for the systematized observations.

4. Morphology and Perception of Users in the Carrilho Videira Garden

The city of Porto, in Portugal, has a wide diversity of public free spaces that are distributed in a varied way across all boroughs, reflecting the relationship between its inhabitants and nature over time.

Initially related to cloisters, farmyards and the proximity to historic buildings, the historic gardens, considered as precursors of the public free space system, functioned as the main open spaces and received the most important public leisure events in Porto. Later, with the expansion beyond the walls, there are recreational farms and promenades, and in the late nineteenth century there is a marked multiplication of private and public gardens, when, besides the São Lazaro Garden, the population also began to enjoy the gardens Palácio de Cristal and Cordoaria. The early nineteenth century is contemplated with the insertion of new standards of aesthetics and functionality that sought to emphasize a romantic environment, as glimpsed in its first public gardens.

The twentieth century is marked by numerous planning plans (such as the City Regulatory Plan of Porto, in 1952, and the Robert Auzelle City Master Plan, in 1962) and the passage of some spaces for public property, enriching public life in the city (MARTINS, 1992). At this point, we highlight some points in relation to urban green: the reduction in quantity; its displacement to the periphery; and the emergence of new typologies of leisure spaces, such as assemblies, clubs, gyms and, later, cinemas, which contributed to the distancing of people from the public sphere of Porto.

Over the next three decades, the deployment of green areas was gradually reduced and public actions reflected only in landscaping works in small spaces. Duarte Castel-Branco's General Urbanization Plan (1987) emphasizes the development of tourism and the sociocultural fabric of a local nature, reflecting the improvement of public leisure spaces, especially those that supported tourism activities. Currently, the urbanistic propositions elaborated for the city are directed to the urbanistic content of the green spaces as green belts or as protective curtains to beautify leisure spaces.

The dynamics of the proposed urban interventions and the changes in lifestyles lead to an appreciation of historical leisure spaces, which preserve a spatial configuration of other times, conserving a different aesthetics and ways of experiencing the urban green structure. Nowadays, even in smaller numbers, the implementation of new public gardens is still observed, although, according to Andresen and Marques (2001), this fact is not enough to meet the environmental and landscape needs of the 21st century urban population of Porto.

Given this, Andresen and Marques (2001) refer to the establishment of gardens Carregal, Passeio Alegre, Arca d'Água and Praça da República, which, at the turn of the 19th century, were built adapting to the topographic constraints and area limitations following current romantic ideals.

Carregal Garden (Carrilho Videira Garden), formerly known as Duque de Beja Square, is located between Dr. Tiago de Almeida Street and Clemente Menéres Street, in Miragaia borough, next to Santo Antonio Hospital. With the project of Jeronymo Monteiro da Costa, built in 1897, on a land provided by the Santa Casa de Misericórdia to the Porto City Council, however, only later underwent renovations and assumed the current features (Figure 2).

The garden is organized around a lake of irregular contours, crossed by a stone bridge, surrounded by large specimens of conifers, cedars and sequoias, planted in flowerbeds between winding paths, reflecting a naturalistic style of romantic influence, according to the prevailing taste at the time of construction (Figure 3). The garden has 17 benches, four lampposts, a magazine selling kiosk and four dumpsters.

Understanding the garden as a locus of sociability, in which its use is related to both the existing spatial configuration and the perception that users have of space, we present the morphospatial and behavioral analyzes performed, emphasizing

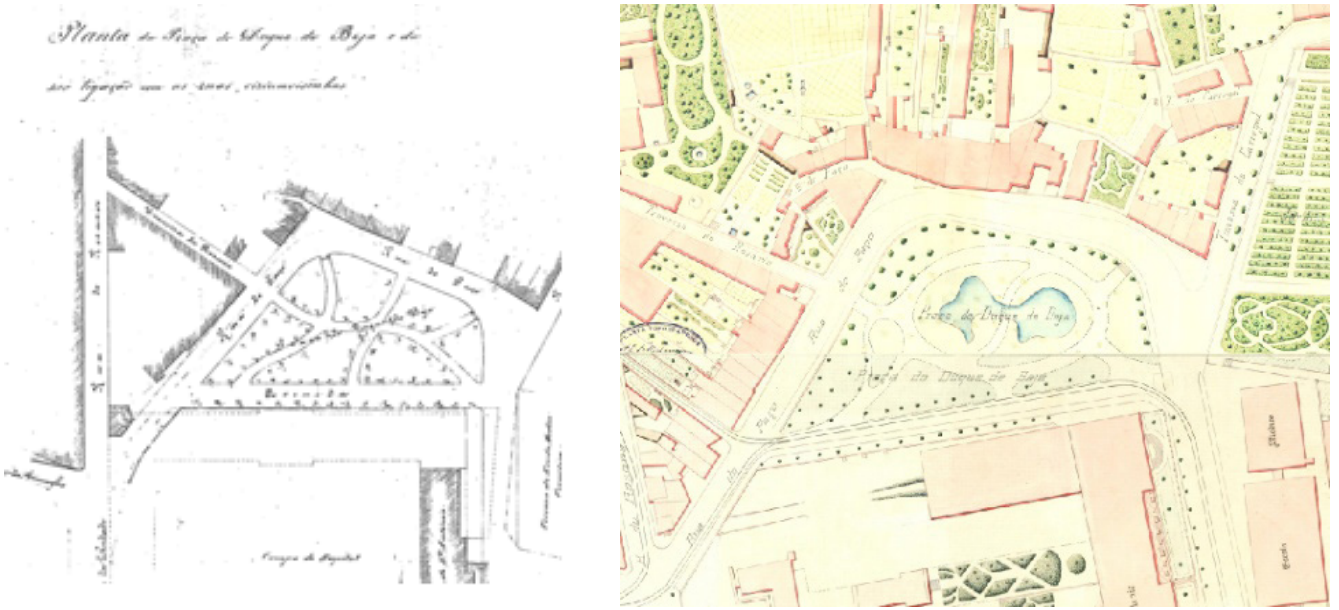

Figure 2 – Records of Duque de Beja Square.
Source: General and Historical Archive of the Porto City Council.

Figure 3 – Carrilho Videira Garden, Porto, Portugal.
Source: Aerial Image, Google Earth, edited by the author. Photos: Trícia Santana, 2018.

the discussion about the points related to urban vitality, based on the reference literature.

4.1. Morphological analisys

In this item, the points related to urban morphology are discussed, understanding that they present a portion in the influence of use of the place. Items related to the immediate surroundings and the garden itself are listed.

4.1.1. Immediate surroundings

A. Land Use

Land use in the immediate vicinity of the square is widely diverse, with distinct activities, most notably those related to residential and optional use activities (such as Santo Antônio General Hospital and the Institute of Forensic Medicine). We chose to work with an analysis of land use that reflected the co-presence related to the way people visit such spaces, so the uses were named as follows: residential; daily (bakeries and schools, for example); eventual (such as restaurants and small markets); optional (can be drugstore and bookstore); in addition to empty / parking use. In this case, the optional use activities are higher (43.24%), followed by residential use (27.02%). In this area, there is only one property for daily use, it is a small fruit market (Figure 4).

It is important to highlight, in this item, the role of Santo Antônio Hospital as a traffic-generating pole (TGP) that contributes to the flow of people who circulate on or around the square. The existence of this TGP proves to be relevant to the vitality of the square. The adopted theoretical framework suggests that the existence of eventual use activities (such as cafes and restaurants) and TGPs contribute to the co-presence and are seen as beneficial to the vitality of the area. This variety of activities combined with residential use contributes to the occurrence of vehicles and pedestrians traveling around the square at various times of the day and helps in the possibility of social interaction between people, in addition to enhancing individuals' sense of safety (WHYTE, 1980).

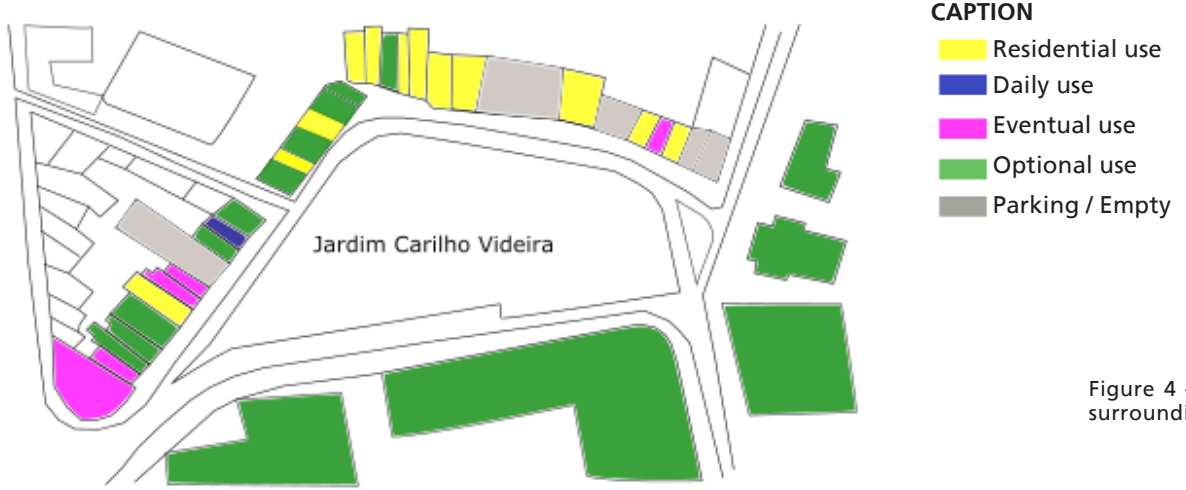

Figure 4 – Survey of land use in the immediate surroundings.

With this scenario, where there are daily, occasional and optional uses, it is understood that the surroundings represent a high diversity in land use, being a favorable condition for the promotion of vitality in the area.

Diversity in land use can potentiate the movement of people traveling around, generating greater possibilities for space to be appropriate (JACOBS, 2001; GEHL, 2006; WHYTE, 1980; ALEXANDER *et al.*, 1977). Therefore, it is important that nonresidential uses occur on the ground floor, there are enterprises focused on activities such as food, and there are large and colorful showcases. On the other hand, in some situations, the variety of the surroundings may be more related to the activity "being in transit", which, although important for urban vitality, does not imply permanence (extended stay), and it is important to analyze the presence of hermetically sealed or self-sufficient institutions, whose relationship with the surroundings may be reduced.

B. Diversity in the Use of Time Shift

Surveys show that there is a diversity in time shift favorable to vitality, since there are properties that host activities that work in two (category II - 29.72%) and in three periods (category III - 29.72%) and which, combined with residential use (accounted for 29.72%), allow people traffic to occur at various times (Figure 5).

This complementarity in the opening hours of the commercial spaces is beneficial to the vitality of the area, as it allows the movement of people in the three-day periods, increasing the chances of visiting the square and increasing the sense of security in the area. According to the adopted categorization, it is an area with high diversity in the use of time shift, a condition very favorable to vitality.

Figure 5 – Physical survey of the item "Diversity of time of use".

c. Presence of Soft Borders

The analysis of this item was based on the characteristics of the building façades, aiming to visualize the presence or absence of spaces that act as soft borders, which in this case were reflected in uses such as cafes and restaurants tables or sidewalk sales, for example.

In the observations made, seven properties with soft borders (18.91%) were registered, related to buildings that make use of public space as an extension of their business, such as cafes, the restaurant and the fruit shop. Note that these soft borders are scattered around the square in different blocks, influencing the movement of people. The existence of paved, flat and wide (approximately 6m) sidewalks, allows the development of this type of appropriation that occurs mainly in the stretches facing Clemente Méneres Street (Figure 6).

With this configuration, the presence of soft borders is not favorable to vitality (presence of up to 33% of properties with soft borders), which can interfere with the vitality in the area.

D. Presence of Doors and Windows

Most of the buildings that open to the public space by doors and windows (Category IV) or by doors or gates (Category III), which favor communication between those inside and outside the buildings, were found. Only one property was counted as a blind wall (Hospital Santo Antonio). Most category IV buildings are located at Clemente Menéres Street. Even existing residential properties have doors and windows that face the public space, facilitating this relationship between the public and private, enabling communication between people and increasing the chances of using the environment (Figure 7).

This situation was considered favorable to the vitality item "doors and windows", increasing the sense of security, since it allows communication between public and private space and allows the act of surveillance and voluntary assistance between individuals.

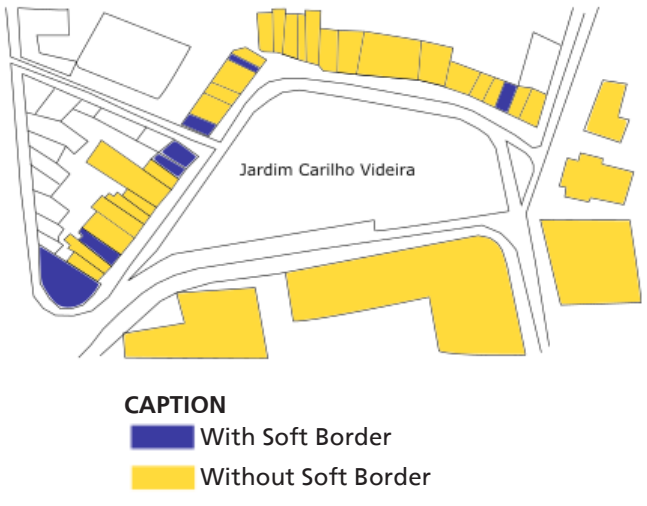

Figure 6 – Physical survey of the item "soft borders".

4.1.2. Environmental scale

In this sub-item, the properties related to the environment itself were verified, understanding that they can influence the use of space. They were: (1) items of urban furniture and equipment; (2) vegetation: with afforestation and landscaping items; and (3) seating spaces.

A. Furniture Items and Urban Equipment

The items that are part of the square were evaluated in relation to their quality. Thus, the benches, the magazine stand, the sculpture, the dumpsters and lampposts were found to be in good condition, clean and conserved, but have little diversity, which leads to the median quality gradation scale, a reasonably favorable condition for vitality (Figure 8).

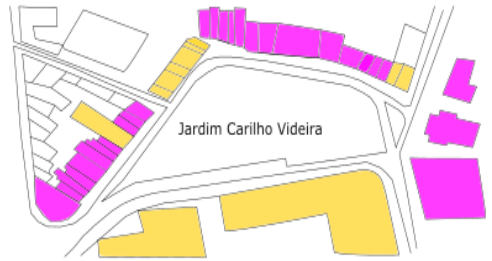

Figure 7 – Physical survey of the item "Doors and windows".

Figure 8 – Physical survey of urban furniture and equipment.

B. Afforestation and Landscape

The presence / absence of nature is also cited in the literature as a relevant factor for the occupation of urban space, with emphasis on its effects on human health - influencing from the physiology of the senses to the psychological well-being of individuals (CARR *et al.*, 1992; CHAUÍ, 1994; COOPER-MARCUS; FRANCIS, 1990; SERPA, 2007; WHYTE, 1980). Although the presence of nature is a broad theme (which should correspond to contact with various elements, such as, among others, fresh air, the presence of water, vegetables and animal life), considering that the public space should allow its users to enjoy pleasant moments and protection from inclement weather, The literature emphasizes comfort in climatic terms, focusing more specifically on afforestation and the compositional elements of flowerbeds.

The garden features medium and large trees that spread out forming a large shade with the tree tops touching, forming a natural canopy that significantly covers the largest area of the place. This arboreal cluster is composed especially of cedars, sequoias and conifers, which are located at the edge as well as in the center of the place. There is an area in which some benches and paths are not situated under the large tree shade, providing the user with distinct opportunities for space use.

Already the landscaping is presented in the form of shrub and herbaceous specimens distributed by beds at the level of grassy and irregularly contoured. Both the landscaping and the tree complex are in good condition.

A bridge that insinuates itself as a ruin, offering the user eye contact with the water, which, together with the vegetation, can provide environmental comfort in times of high solar temperature or reduced air humidity (Figure 9), crosses the irregular lake that adorns the center of the garden.

With this configuration, consisting of impressive plant specimens and landscape components that enrich the user experience, such as the lake and the bridge, there is a situation favorable to the vitality of the space.

Figure 9 – Elements of landscaping and afforestation.

C. Seating Elements

It was observed that in the garden only the staircase presents itself as an informal place to sit, there are benches (17 units) that appear under rectangular blocks of concrete and spread on the edges of paved paths. Near the bridge is a set of concrete blocks that are sometimes used as bench, considered in this research as informal sitting elements. In view of this configuration and according to the reference bibliography, these sitting elements, formal and informal, evenly distributed throughout the garden, are beneficial to urban vitality.

Considering all the morphological items investigated (indicated in the literature), it would be reasonable to infer that the greater the number of elements evaluated as favorable to the use of the site, the greater the likelihood of its being effectively used and, therefore, the greater the probability of vitality, understood as the presence of people performing multiple activities (notably

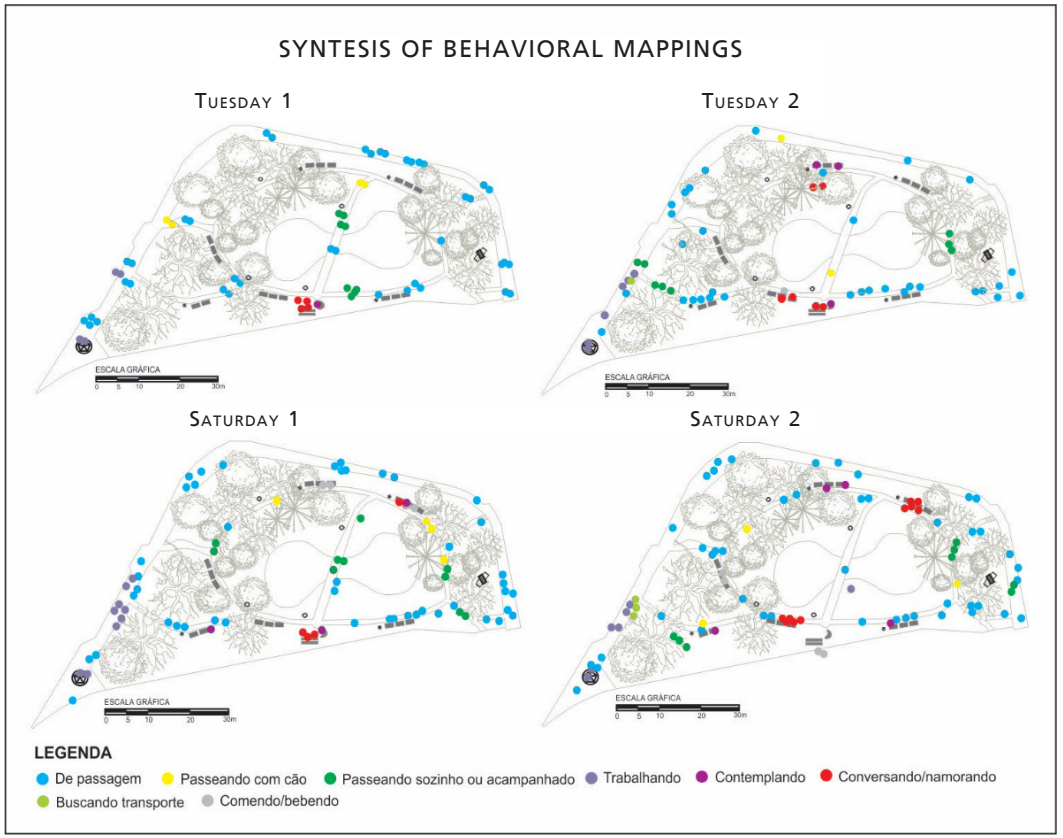

Figure 10 – Synthesis of behavioral mappings.

Caption: Blue: passing through; Yellow: walk with dog; Dark Green: walking alone or accompanied; Purple: Work; Lilac: contemplate; Red: date / chat; Light Green: seek transportation; Gray: eat / drink.

permanence) at different times of the day (ALEXANDER *et al.*, 1977; GEHL, 2006; WHYTE, 1980).

Based on this reasoning, Carrilho Videira Garden presented in its morphological analysis all aspects favorable to vitality, suggesting a potential to attract users to permanence functions in its area. This morphological quality can be justified by its location near the historical and commercial center of Porto, in a tourist area, next to an important TGP (Santo Antonio Hospital). It is also justified by the state of conservation and maintenance of the garden and the surroundings, which allows users to remain. In addition, we highlight the existence of an environment that mixes residential and commercial activities and the provision of services, enabling the circulation of a wide range of people around and around the garden.

4.1.3. Behavioral analisys

With the behavioral mappings, it was noticed that the spatial use varied with each day and time, as well as the occurrence of activities. In total, 292 people were computed at all times observed. The activities recorded were: walk with dog (PC); walk with people (PP); contemplate (CT); date / chat (NC); eat / drink (CB); work (TR); be passing through (DP) and seek transportation (BT). Following is the synthesis of the observation days (Figure 10).

The most visited day was the second Saturday, with 86 people, and the first Tuesday was the day that received the least users, 60. At all times, the activity "being in transit" was the most recorded, with 169 individuals, being more expressive in the

hours of 10h and 16h, of all observed days. Some activities are noteworthy in certain places, in this sense, due to the existence of a taxi stand (sector 1), the activity "seek transportation" was registered, in smaller quantity, with 4 users computed every day. Regarding the activities considered as permanence, "date / chat", "walk with people" and "work" were the most recorded (Table).

Note that the most used sector was number one in all days and times (146 people), except on the first Tuesday. In this sector, a winding path crosses the garden to its greatest extent and allows walking from side to side for a shaded and visually pleasant path, with the possibility of sitting. This is an interesting area that has hosted many activities, supported especially by its seating spaces, such as 'contemplate', 'eat / drink', 'date / chat', offering a view of the lake, the bridge and the rest of the garden.

Already in sector 2 is located the lake in the central part of the garden, an important attraction, with benches that allow visual access to the entire area and the flowerbeds that decorate it. his sector received diversified activities such as: "date / chat", "walk with people", "eat / drink", "walk with dog".

Sector 3 covers mainly the path through the outer ring of the garden, leading the user to walk one level below the rest of the area and near the garden parking lot and the surrounding area. It is understood that walk by it users who do not want to transit the garden itself, but seek other attractions of the surroundings.

As for the most visited times, it was found that the night period was the least registered users on all observation days (75), especially on Tuesday (12). During this period, the activity "passing through" was the most recorded (42), followed by "walk with people" (11) and "date / chat" (13) (Table 2).

In terms of use, the type of occupation observed showed a tendency to perform activities directly related to the existing possibilities in the place, which will also influence the public (children, adults, young people). Although the research did not have differences between users' gender and age, it is noted that activities such as play and exercise, for example, are not very frequent, since there are no children's toys or other equipment that enable these practices. On the other hand, even though there are no kiosks selling food and drink, there were still people performing these tasks, however, this may be due to

Table 1 - Place-based behavioral mappings.

DAY	SECTOR	ACTIVITIES								TOTAL
		DP	TR	PC	PP	CB	CT	NC	BT	
TUESDAY 1	1	17	4	0	2	0	1	0	0	24
	2	16	0	4	4	0	0	2	0	26
	3	10	0	0	0	0	0	0	0	10
	TOTAL	43	4	4	6	0	1	2	0	60
TUESDAY 2	1	18	6	0	5	1	1	5	1	37
	2	7	0	1	3	0	2	2	0	15
	3	9	0	2	0	0	0	0	0	11
	TOTAL	34	6	3	8	1	3	7	1	63
SATURDAY 1	1	22	9	0	2	0	2	6	0	41
	2	11	0	4	8	4	1	2	0	30
	3	12	0	0	0	0	0	0	0	12
	TOTAL	45	9	4	10	4	3	8	0	83
SATURDAY 2	1	21	7	1	3	2	2	5	3	44
	2	16	0	2	5	2	2	5	0	32
	3	10	0	0	0	0	0	0	0	10
	TOTAL	47	7	3	8	4	4	10	3	86
TOTAL		**169**	**26**	**14**	**32**	**9**	**11**	**27**	**4**	**292**

Table 2 – Place-based behavioral mappings.

DAY	HOUR	ACTIVITIES								TOTAL
		DP	TR	PC	PP	CB	CT	NC	BT	
TUESDAY 1	10H	21	2	2	2	0	1	0	0	**28**
	16H	13	2	1	2	0	0	2	0	**20**
	20H	9	0	1	2	0	0	0	0	**12**
	TOTAL	43	4	4	6	0	1	2	0	**60**
TUESDAY 2	10H	12	3	1	3	1	1	3	0	**24**
	16H	12	2	1	3	0	1	2	1	**22**
	20H	10	1	1	2	0	1	2	0	**17**
	TOTAL	34	6	3	8	1	3	7	1	**63**
SATURDAY 1	10H	15	3	2	2	0	0	5	0	**27**
	16H	19	4	1	4	2	2	0	0	**32**
	20H	11	2	1	4	2	1	3	0	**24**
	TOTAL	45	9	4	10	4	3	8	0	**83**
SATURDAY 2	10H	19	4	1	3	2	2	2	0	**33**
	16H	16	3	1	2	2	1	3	3	**31**
	20H	12	0	1	3	0	1	5	0	**22**
	TOTAL	47	7	3	8	4	4	10	3	**86**
TOTAL		**169**	**26**	**14**	**32**	**9**	**11**	**27**	**4**	**292**

the existence of cafes and restaurants in the surrounding area, which illustrates the relationship of the place with the spatial context in which it is inserted. This general picture corroborates the literature (GEHL, 2006; LIBERALINO, 2011; SILVA, 2014), especially regarding the relationship between morphology and the development of activities of specific groups, as illustrated by situations of conversation or contemplation (comfortable benches), play (playground) and sports or exercise (court, third age gym, flat and well maintained sidewalk).

Still investigating the use of space, it is noted that the maximum number of simultaneous users is very close at all times of observation (first Tuesday: 60 people; second Tuesday: 63 people; first Saturday: 80 people; second Saturday: 83 people)and, as a result, the maximum density obtained is different in each case, which makes us wonder which investigated attributes are most strongly influencing this use, and whether other elements are also acting at the site so that vitality occurs and sustains itself.

A first aspect to comment on in this regard is the dimension of spaces. In linear terms, Gehl (2006) argues that a public space should not exceed 100m. On the other hand, Whyte (1980) indicates that if the place is not excessively large, its dimensions will not be a problem for interaction between individuals. In the case investigated, the garden has one of its dimensions above this value (longest side: 155m - Dr. Tiago de Almeida Street), which does not appear to change its conditions of use either from the point of view of users, or by behavioral mapping. (which showed no significant differences in occupancy between its parts and the perimeter). Therefore, if smaller environments favor social interaction between users and, consequently, offer better possibilities of vitality, the garden really has an advantage in this item.

The perception of afforestation and its appreciation by the population is reflected in the times of use and the most used places. Thus, morning and afternoon represent the most crowded moments. It is considered that other issues (social, lifestyle, for example) may also interfere with the visiting hours of the places,

but comfort conditions seem to have their share of influence in this regard.

As for the *compositional elements* of space, it is understood that proposals that allow contemplation, contact with nature and social interaction also influence the perception of users, but act less on their choices, not reaching the point, for example, of restricting the use of the place.

5. Final Considerations

In a kind of analogy to human vitality, the vitality of a space was understood as an indispensable element for health and city life, as an intermediate line between apathy and excitement. It is, therefore, the ability of animation in function of the social relations that happen in a place, being conditioned by the morphological attributes of the environment, but also by the perception that its users have of it. Thus, it is assumed that there is a desirable type of vitality for each type of space, that is, that a commercial area requires a different kind of animation from that required for a residential sector, although some of the elements / attributes of that vitality may be valid for both.

The development of the research pointed the importance of the public spaces of the cities to be thought from a careful look at morphospatial and sociocultural particularities of the different places, and valuing the users perception. Classical literature in the area has led to the understanding that urban vitality is a rich theme regarding the amount of aspects that must be considered and interrelated, which resonate in recent empirical research. Thus, starting from a matrix of criteria for performance evaluation of Carrilho Videira Garden, in the city of Porto, this study tried to aggregate morphological and perceptual approaches to understand the use of the public environment.

Regarding the surroundings, it is also emphasized that the aspects of morphology investigated did not take into account some characteristics of its surroundings (such as topography, for example), pointing to the need for future analysis to address other aspects, these aspects include: How does the population density of the nearby area affect the density of use of the spaces there? Does the building typology of the liner area interfere with the diversity of activities developed in the place and the density of its use? Does the position of the garden in relation to the surrounding ground level influence its appropriation? How is the socioeconomic situation of the population reflected in the use of public spaces in a borough?

From the activities carried out in place, it is clear that the influence of spatial morphology – of the environment itself rather than its surroundings – affects the intensity and frequency with which behaviors occur, especially in the development of optional and social activities, as well as how it participates in the choices and perceptions of individuals, leading them to reproduce a very close identity relationship with the opportunities of using the place.

Due to the multidimensional and interdependent character that involves the processes of identification and use of public environments, it would be essential to investigate how other factors. Factors such as economic, social and cultural, contribute to influence the perception of individuals and their relationships with daily spaces, which were not investigated in this thesis (revealing a limitation of this research), but are a suggestion for other studies that deepen the debate. Other points that may guide further investigations are: analysis of the socioeconomic situation of the area and the inhabitants surrounding the spaces; conducting person-based behavioral mapping to verify details of space use; environmental perception survey of surrounding workers, seeking a different perspective on the use of the area; and expansion of morphological and spatial analysis.

We understand that working a morphological approach from the perspective of users is one more way to understand the phenomenon of vitality in public free spaces, valuing the perception of residents and visitors as individuals able to opine in the constitution of their daily spaces, serving as an important reference for any intervention that may happen to them.

Bibliographical References

ALEXANDER, Christopher; ISHIKAWA, Sara; SILVERSTEIN, Murray; JACOBSON, Max; FIKSDAHL-KING, Ingrid; ANGEL, Shlomo. **A pattern language**: towns, buildings, construction. Nova York: Oxford University Press, 1977.

ANDRESEN, Teresa; MARQUES, Teresa Portela. **Jardins Históricos do Porto**. Lisboa: Inapa, 2001.

ARENDT, Hannah. **A condição humana**. Rio de Janeiro: Forense Universitária, 1991.

CALDEIRA, Teresa Pires do Rio. **Cidade de muros**: crime, segregação e cidadania em São Paulo. São Paulo: Editora 34: Edusp, 2000.

CARR, Stephen; FRANCIS, Mark; RIVLIN, Leanne G.; STONE, Andrew M. **Public space**. New York: Cambridge University Press, 1992. Disponível em: https://books.google.com.br/books?id=pjo4AAAAIAAJ&printsec=frontcover&dq=Carr+Public+Places&hl=pt-BR&sa=X&ei=082iVLwDwteDBIyMhMAO&ved=0CB4Q6AEwAA#v=onepage&q=Carr%20Public%20Places&f=false Acesso em: 21 abr. 2019.

CHAUÍ, Marilena. **Convite à filosofia**. São Paulo: Ática, 1994.

COOPER MARCUS, Clare; FRANCIS, Carolyn (ed.). **People places**: design guidelines for urban open space. New York: Van Nostrand Reinhold, 1990.

D'AGOSTINI, Luiz Renato; CUNHA, Ana Paula Pereira. **Ambiente**. Rio de Janeiro: Garamond, 2007.

FERRARI, Célson. **Planejamento municipal integrado**. São Paulo: Pioneira, 1997.

GEHL, Jan. **La humanización del espacio urbano**: la vida social entre los edificios. Barcelona: Reverté, 2006.

GEHL, Jan; GEMZØE, Lars. **Novos espaços urbanos**. São Paulo: Gustavo Gilli, 2002.

GOFFMAN, Erving. **Behavior in public places**. New York: Free Press, 1966.

GOMES, Paulo César da Costa. **A condição urbana**: ensaios de geopolítica da cidade. Rio de Janeiro: Bertrand Brasil, 2002.

HABERMAS, Jürgen. **Mudança estrutural da esfera pública**: investigações quanto a uma categoria da sociedade burguesa. Rio de Janeiro: Tempo Brasileiro, 1984.

HALL, Edward T. **A dimensão oculta**. Rio de Janeiro: Francisco Alves, 1977.

HOLANDA, Frederico Rosa Borges de. **O espaço de exceção**. Brasília, DF: Editora UnB, 2002.

HOLANDA, Frederico Rosa Borges de. A determinação negativa do movimento moderno. *In*: HOLANDA, Frederico Rosa Borges de (org.). **Arquitetura e Urbanidade**. 2. ed. Brasília, DF: FRBH Edições, 2011. p. 19-37.

JACOBS, Jane. **Morte e vida de grandes cidades**. São Paulo: Martins Fontes, 2001.

JODELET, Denise. A cidade e a memória. *In*: DEL RIO, Vicente; DUARTE, Crisitiane Rose; RHEINGANTZ, Paulo Afonso. **Projeto do Lugar**: colaboração entre psicologia, arquitetura e urbanismo. Rio de Janeiro: Contra Capa, 2002. p. 31-43.

LIBERALINO, Cintia Camila. **Praça**: lugar de lazer: relações entre características ambientais e comportamentais na Praça Kalina Maia – Natal RN. 2011. Dissertação (Mestrado em Psicologia) – Universidade Federal do Rio Grande do Norte, Natal, 2011.

MARTINS, Luis Paulo Saldanha. Do passeio público ao "jogo de cartas": apontamentos sobre os espaços ajardinados do Porto. COLÓQUIO IBÉRICO DE GEOGRAFIA, 6., 1992, Porto. **Anais** [...]. Porto: Universidade do Porto, 1992. p. 627-640.

NETTO, Vinicius M. O efeito da arquitetura: Impactos sociais, econômicos e ambientais de diferentes configurações de quarteirão. **Arquitextos**, São Paulo, ano 7, n. 079.07, 2006. Disponível em: http://www.vitruvius.com.br/revistas/read/arquitextos/07.079/290. Acesso em: 21 abr. 2013.

PINHEIRO, José Q.; ELALI, Gleice A.; FERNANDES, Odara S. Observando a interação pessoa-ambiente: vestígios ambientais e mapeamento comportamental. *In*: PINHEIRO, José Q.; GÜNTHER, Hartmut (org.). **Métodos de pesquisa nos estudos pessoa-ambiente**. São Paulo: Casa do Psicólogo, 2008. p. 75-104.

SENNETT, Richard. **O declínio do homem público**: as tiranias da intimidade. São Paulo: Companhia das Letras, 1988.

SERPA, Angelo. **O espaço público na cidade contemporânea**. São Paulo: Contexto, 2007.

SILVA, Eduardo Alexandre Ribeiro da. **Interação social e envelhecimento ativo**: um estudo em duas praças de Natal/RN. Tese (Doutorado em Psicologia) – Programa de Pós-Graduação em Psicologia, Universidade Federal do Rio Grande do Norte, Natal, 2014.

TUAN, Yi-Fu. **Espaço e lugar**: a perspectiva da experiência. São Paulo: Difel, 1983.

YURGEL, Marlene. **Urbanismo e lazer**. São Paulo: Nobel, 1983.

WHYTE, William H. **The social life of small urban spaces**. New York: Project for Public Spaces, 1980.

Trícia Caroline da Silva Santana
Universidade Federal Rural do Semi-Árido (Ufersa).
Rua Baía das Canárias, 2234, Natal, RN, Brasil, CEP 59092-295
CV: http://lattes.cnpq.br/4315619665111241
Orcid: https://orcid.org/0000-0002-1415-4508
triciasantana@gmail.com

Graça Correia Ragazzi
Universidade do Porto. Faculdade de Arquitectura (Faup)
R. de Augusto Rosa 24, 4000-098 Porto, Portugal
Orcid: http://orcid.org/0000-0003-2308-5425
correiaragazzi@gmail.com

Editor's Note:
Submitted: 06/23/2019
Approved on: 07/10/2019
Text review: RMO