

Post-pandemic appropriation in an urban park: notes from an analysis of the use of urban furniture in Parque da Gare, in Passo Fundo/RS

Laura Pasa Cambrussi

Master of Architecture and Urban Planning, Graduate Program in Architecture and Urban Planning,
Polytechnic School, ATITUS Educação, Campus Santa Teresinha, Passo Fundo, Brazil.
lauracambrussi@hotmail.com

Grace Tibério Cardoso

PhD Professor, Graduate Program in Architecture and Urbanism,
Polytechnic School, ATITUS Educação, Santa Teresinha Campus, Passo Fundo, Brazil.
gracetiberio@hotmail.com

ABSTRACT

The pandemic has established a contradiction in cities, where a public space, such as an urban park, which facilitates activities and social interactions, has also been the driving force behind the transmission of the COVID-19 virus. Thus, this new dynamic may have had an impact on the user's view of the city and its attributes, forcing facets of aversion into urban respiration. In this way, the aim is to investigate the process of use and appropriation of Parque da Gare, in Passo Fundo, in the north of the state of Rio Grande do Sul, based on the behavior and perception of users of the space, after the pandemic scenario. The methodology was applied in two stages: firstly, to map the process of users' choices, the behavioral analysis method was applied, carrying out systematic observations. In the second step, observations were combined with the user's perception through online questionnaires, contributing to a macro assessment. Discussing the results, it was possible to see that significant changes in the appropriation of urban furniture occurred, along with impacts on preference. It was noted that survey respondents do not feel safe using local furniture, which requires interventions in terms of management, maintenance and new project proposals in parks. With the work, observed preferences were spatialized, understanding patterns of attitudes and behaviors, contributing to the understanding of urban perceptions. It is concluded that these places of immense value in the city's health require adjustments, to reconnect the user with the park's infrastructure, guaranteeing more positive and safe sensations in this return to the city.

KEYWORDS: Public place. Urban Park. Use and Appropriation. COVID-19.

1. INTRODUCTION

Beiguelman (2020), in her work "*Coronavida: pandemic, city and urban culture*", presents some points for reflection on the impacts of the Coronavirus on urban culture and the understanding of the city. The author satirizes the issue, asking "Is it already possible to divide life between BC and AC? Before Coronavirus and after Coronavirus?" (BEIGUELMAN, 2020, p. 5).

For Le Corbusier (1993), urbanism's basic functions are to serve as an environment for housing, work, recreation and movement of people, being, according to Araújo (2009), adaptable to the needs and demands of the population. Within the current context, COVID-19 brought about changes in the way of life across the planet, where, at the beginning of 2020, as determined by the responsible authorities, people from all over the world were encouraged and even forced to remain in their homes, in quarantine, not using public spaces and avoiding contact with other people (MONTEIRO et al., 2021).

In some cases, public open spaces were adapted to allow their use, concerning social distancing (PAYTON, 2021). In others, the pandemic, in addition to accentuating the abandonment of public leisure and recreation environments, highlighted inadequacies, both in structure and safe use tactics, mainly in the way users appropriate urban equipment.

Considering that green areas and urban parks are of significant importance and closely related to spheres of action and human interest (REZENDE; DALMACIO; SANT'ANNA, 2019), it is worth bringing to the surface discussions about the elements that make them up and the population's perception, after the pandemic scenario, of restricted use and aversion to the appropriation of urban public objects. Thus, the conceptual definition of the expression "urban furniture" becomes important for delimiting the object to be studied.

Within the scope of this work, only urban furniture considered utilitarian will be studied, as a research section, in order to specifically map the user's contact action with the space. To this end, we chose to select benches, distributed throughout the Parque da Gare area.

From another perspective, we look at appropriation in the broadest sense: appropriation of public spaces, through use, for the fulfillment of people's daily lives. In this sense, Lefebvre (1975) defines appropriation as the purpose of social life. As a result, the way users use space represents a triumph over the planned and dominating rationality that seeks to establish itself in the city. The user space, or living space, is the appropriate space. Everyday life is centered on the relationship between real spaces of representation (which are real, concrete, appropriate and lived) and spatial representations (abstract, objective, dominating).

Thus, among the emotions linked to the use of furniture are safety, pride, excitement and satisfaction (JORDAN, 1998), attraction, fascination, and inspiration (DESMET, 2008), with people expressing affection for some products to the point of "loving" them (RUSSO; HEKKERT, 2008). On the other hand, frustrating interactions with products can reveal unfavorable emotions such as anxiety, fear or even anger (NORMAN, 2004). According to Damásio (2003), the image of an event from the past, present or future can affect a person in a pleasant or painful way. The effect is the same whether the source of the sensation is actually present as an image and perceptible or reconstructed from memory.

According to Alves (2019), emotional experiences are found in ordinary life, in trivial things. Consequently, a careful and sensitive look at these very important perceptions of the built environment becomes necessary. For this work, it is important to discuss appropriation in relation to the space-time situation since the discussion about Parque da Gare will be carried out by pointing out the changes in the forms of use and appropriation of space in the face of the pandemic scenario of SARS-CoV-2.

Following the contributions of these authors, it is understood that the success of the environment lies in the people who inhabit it. Quality is, therefore, found in the interaction between people in public spaces and in the sense of adaptation to the environment.

2 OBJECTIVE

The objective of this article is to investigate the process of use and appropriation of Parque da Gare, in Passo Fundo, north of the state of Rio Grande do Sul, based on the perception of different users of the space regarding the use and appropriation of the park, after the pandemic scenario.

3 METHODOLOGICAL PROCEDURES

The method developed in this work is divided into three main stages: Definition and Characterization of the Study Area; Behavioral Analysis; and User Perception.

3.1 Definition and Characterization of the Study Area

The city of Passo Fundo is located in the north of the state of Rio Grande do Sul (Figure 1), ranking as the 12th most populous in the State, with around 206,103 thousand inhabitants (IBGE, 2021). The choice of the city of Passo Fundo, the object of study, was due to its prominent role, being the 6th largest economy in the State (PMPF, 2022), having a position as a regional center, higher education hub and reference in service to health. It also stands out in activities in the services, commerce, industry and agribusiness sectors (FERRETTO, 2012; CAMARA, 2018). The city has a land area of 784,407 km² (IBGE, 2021).

The spatial scope of this research fits into the classification of public spaces with a predominance of green, and is named Parque da Gare. Its creation took place in the 1980s, after the deactivation of the railway line, with an area of approximately 72 thousand m² (PMPF, 2022), presenting a diversity of elements that structure it, preserving the history of the railway and the characteristics of the architecture and construction of the railway era; it has a large leisure and recreation area, at a sporting, cultural, artistic, educational and environmental level.

Parque da Gare is the largest urban park in Passo Fundo and, as such, plays the role of an urban landmark, full of symbolism and social, economic and cultural functionality. Therefore, the landscape addressed in this research has a broad significance and a strong element of urban landscape quality.

In this way, the following landmarks and nodal points of the park were listed (Figure 1).

Figure1- Parque da Gare, Nodal Points and Reference Landmarks chosen for the analysis of the space



Source: Prepared by the Authors (2023).

As a time frame, this research analyzes the evaluation of users of the space at the current time (2023), this being after the SARS-CoV-2 pandemic.

3.2 Behavioral Analysis

For this type of research and analysis, the Behavioral Maps (Behavior Mapping or Behavior Setting) method is used to specifically direct these interactions between users, as well as between them and the relevant public space (FARIAS, 2021). In this way, the approach helps to understand behavior patterns due to time and space of observation, highlighting the interdependence of the study between the user and the environment.

The displacement mapping model was also used, where the researcher travels a previously established section and, for a designated period, observes actions in the space and indicates the characteristics of the user, their activities and interactions. It should be noted here that Behavioral Maps can be observed and then spatialized (PIPPI, 2014). It is also necessary to

choose the most opportune moment to carry out the mapping, given the need to cover the greatest number of times of use of the environment and its activities (PIPPI, 2014; RHEINNGANTZ et al., 2009).

To determine the sample, criteria were defined based on visits carried out in the exploratory visit stage. The choice of analyzing on weekends was due to the great difference in the number of people and uses on those days in Parque da Gare. In this way, a collection schedule was prepared, with weekends (01/07/2023 and 01/08/2023) presented here, with data from the morning, afternoon and evening, in the time interval from 9am to 10am, from 2pm to 3pm and from 6pm to 7pm.

The approach of different days during the week is justified by the range of activities that occur at selected times, where, for example, on Saturday morning, the Small Farmers Market takes place, attracting different users to the park. In the afternoon (2pm – 3pm), specific activities take place such as walking, running and using park equipment. In the evening (6pm – 7pm) people gather in the lake area, where it is possible to watch the sunset and admire the landscape, used as a meeting point after business hours, and is also safe for the researcher. The route was carried out by walking at a slow pace and with breaks for observation, note-taking and photographic recording.

On collection days and shifts, the current weather conditions (temperature) and types of sunlight (sunny, cloudy, partially cloudy) were recorded as factors to repel or attract the public (FARIAS, 2021).

In a second moment, the data was spatialized in a Geographic Information System (GIS), as previously mentioned, in the QGIS 3.28.2 Software, where it was possible to analyze the Use and Appropriation of the Parque da Gare.

To better observe impact areas (a greater number of people in a given use), the Kernel Method was applied, considering on-site observations about the use of the space, correlating with landscape elements.

Kernel density estimation is a non-parametric way¹ to estimate the probability density function of a random variable (LANA, 2009). From the spatialization of larger points for the use of the park's fixed furniture and the furniture taken to the park by users, the spatial statistics technique of the Kernel density estimator was applied, which is a technique that considers intensity, detecting the occurrence of distributions of events in clusters or their occurrence randomly (BAILEY; GATRELL, 1995).

This estimator is a two-dimensional function that places events in a region defined by a radius, producing a count of the points added to it and indicating the surface of greater or lesser concentration of the events under consideration (BAILEY; GATRELL, 1995).

In this way, the slicing technique was applied, generating a thematic image with five classes, related to the density of occurrence of a given conflict, being separated into high concentration (red), medium concentration (yellow) and low concentration (blue), thus enabling visualization of a gradient of cluster density variation.

Given the above, behavioral mapping reveals the individual's environmental choices but does not inform the motivations for these choices. To this end, the need for a questionnaire to complement these perceptions is added.

¹It does not use mean and standard deviation as parameters and does not follow a normal distribution or does not have enough elements to state that it is normal (BAILEY; GATRELL, 1995).

3.3 User Perception

The user of urban space becomes a fundamental element for characterizing the quality of the environment, being able to provide essential information according to their point of view. Therefore, for this type of study and analysis, the inquiry method is used and, for the present research, the questionnaire technique was chosen.

It was launched at the beginning of January 2023, with a one-month open period for responses, publicized through the researcher's social networks, and had a Free and Informed Consent Form for acceptance by the respondent.

The questionnaire, completely anonymous, online and qualitative, with closed questions, had a stage called Perceptions of the Public Space, with a structure of six questions, three of which were open and three closed, questioning the respondent's view of the park's furniture, preferences for uses, appropriations and sensations of using the space.

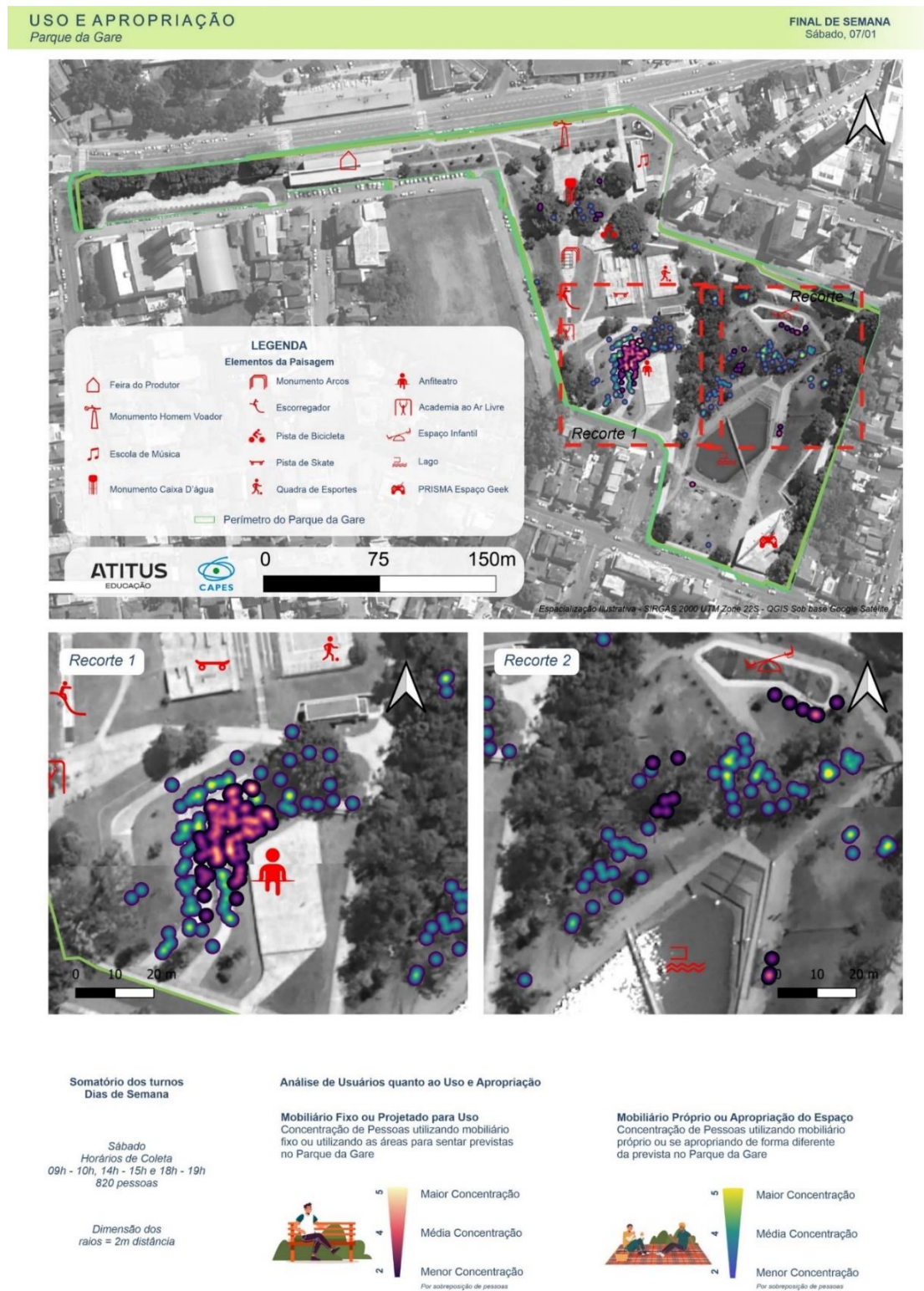
4 RESULTS

Next, the results obtained in this research will be presented.

4.1 Behavioral Analysis

Elements intended for rest or contemplation, that is, those that are identified as part of urban furniture, such as seats, were used equivalently, on Saturday, by users of Parque da Gare, when compared to appropriation in a diverse way, such as can be verified on the spatialization map (Figure 2).

Figure 2- Use and Appropriation of the Parque da Gare Space, focused on furniture, on Saturday



Source: Prepared by the Authors (2023).

It is also possible to note that the seats used mostly concern the Amphitheater area, which has observation steps, like a grandstand (Figure 3).

Figure 2- Top View Element of the Amphitheater Landscape, with its uses and appropriations, on Saturday



Source: Authors (2023).

Specifically, in the Amphitheater, users seem not to be bothered by the lack of shading, or significant vegetation cover to create a more pleasant environment for rest and contemplation.

The benches in the space have wooden seats, without construction principles that incorporate the product into the context of the park. Its metal structure, concreted to the ground, prevents movement (Figure 4).

Figure 3- Typologies and Structures of Benches in Parque da Gare



Source: Authors (2023).

Regarding the appropriation of the space in a different way than planned, the majority of users use their own chairs in Section 1 (Figure 5). It is noteworthy here that the park's landscape is inviting to contemplation, along with its topographical dynamics, but that it has few units of physical benches, with around 30 units throughout the park (counted by the author).

Figure 4- Appropriation of Space, in Parque da Gare



Source: Authors (2023).

In Section 2, there is a greater distribution of users across the landscape, with the majority using spaces that were not specifically designed for resting, but which invite users to take advantage of them (Figure 6).

In this sense, it was observed that shaded areas with the presence of vegetation are the most sought after, with the use of stairs and the deck around the lake. The users also use their own chairs, the grass in the park and mats to sit on.

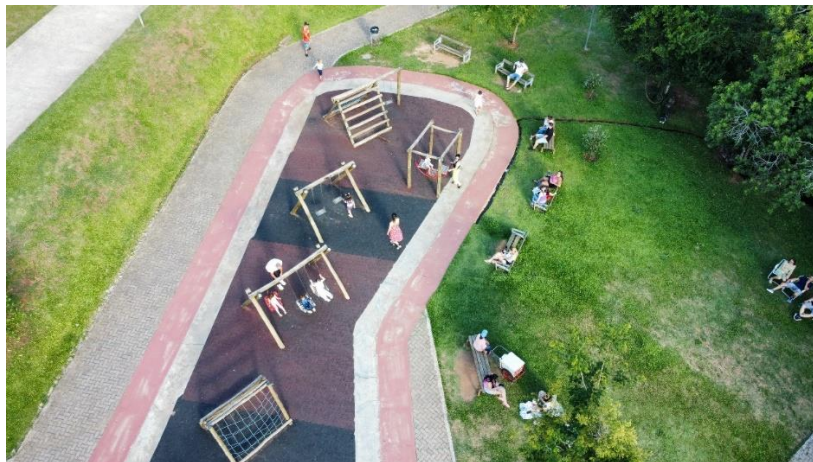
Figure 5- Different forms of appropriation around the Lake, in Parque da Gare



Source: Authors (2023).

Furthermore, also in Section 2, the Children's Space (Figure 7) stands out for the use of both fixed benches and its own furniture, which can occur due to the possibility of customizing the space according to the user's needs.

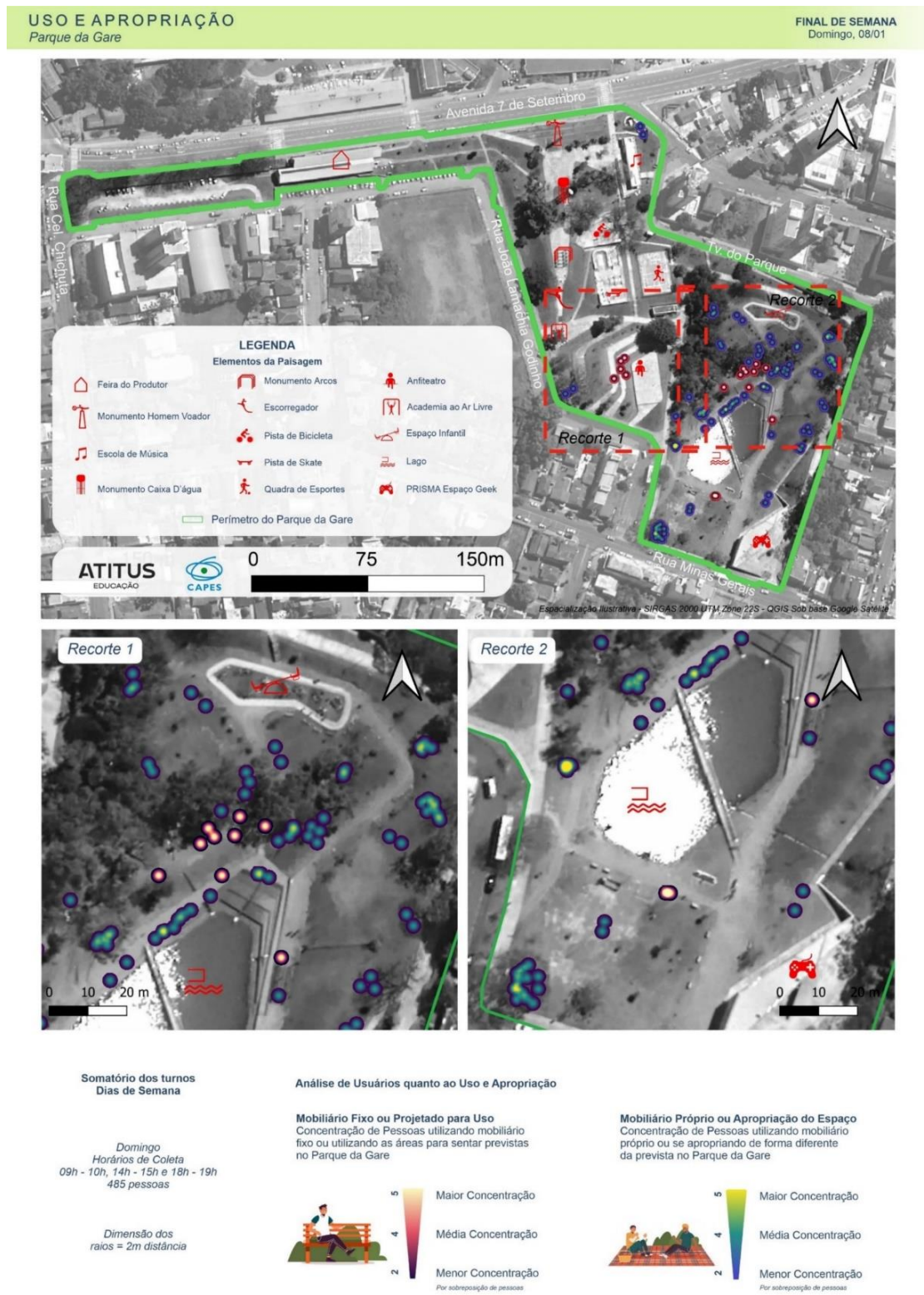
Figure 6- Children's Space, use and appropriations, in Parque da Gare.



Source: Authors (2023).

Elements intended for rest or contemplation, that is, those that are identified as part of urban furniture, such as seats, were used to a lesser extent on Sunday, by users of Parque da Gare, when compared to appropriation in a diverse way. Next, the results of Sunday's behavioral analysis are spatialized (Figure 8).

Figure 7- Use and Appropriation of the Parque da Gare Space, focused on furniture, on Sunday



Source: Prepared by the Authors (2023).

In this way, in all shifts analyzed, it is possible to observe the appropriation of the space in a particular way, by users, with emphasis on the Children's Space area and around the Lake, specifically, in lawn areas.

Furthermore, there are interaction points in the park's bordering areas which are used by users, even without activities, landscape elements or benches.

At another point, close to the Lake, even though there were benches, some users preferred to sit on their own furniture (Figure 9).

Figure 9 - Users of Parque da Gare, appropriating different forms of the space.



Source: Authors (2023).

At another point, there is the appropriation of simplified forms, using the park's lawn (Figure 10).

Figure 8- Appropriation of the landscape, in Parque da Gare



Source: Authors (2023).

This preference may be linked to the idea of personalizing the environment according to desires and needs, whether by feeling safer with one's own furniture or even the simple possibility of enjoying spaces with direct contact with nature.

The greatest occurrence of uses and appropriations, in the context of furniture, also occurred in these shaded areas. Mostly, there is a preference for furniture or a form of personal appropriation, as mentioned in the analysis (beach chairs, sitting on towels or even on the grass).

It is worth noting that numerous observable factors can influence the use or preference of the park by users, such as the characteristics of the park itself — quality and quantity of available space and furniture; access to local facilities — courts, contemplation and

leisure areas; the relationship between park attributes and local user needs; the maintenance of the park, and also the perceived safety factors.

4.2 User Perception

Park users, when asked about their perception of any sanitary hygiene protocol, measures such as Hand Sanitizer and Use of Facemasks were mentioned three times each. Others such as “No crowding, General Cleaning of Space and Cleaning of Toilets,” represented two votes each. Finally, one respondent noted the distancing of banks as the adopted protocol. To this end, 24 respondents did not verify any changes that would guarantee the resumption of urban space.

When it comes to whether the user believes that the pandemic moment has interfered with their view of public space, currently giving preference to private space, some of the following questions were reported, in relation to preference:

“Yes, the lack of a green area at home was missed more during the pandemic due to social isolation.”

“I continue to use the space normally, but now with more attention to my personal hygiene.”

“Now I prioritize open spaces, nature.”

“Yes, for increased privacy so that everyone could be protected.”

“Yes, at the time of the pandemic, I lived in an apartment. It was bad not being able to go outside to get some air or sun. Now that I live at home, I see that this is a great privilege and has become a priority.”

“I believe so, for the reason of maintaining care. And stay safe.”

“I prefer parks to staying at home.”

On the other hand, some of the following situations were reported:

“We opted for a private space, as it felt safer, with less movement of people and aware that whoever is using the private space is taking all protective measures to avoid passing COVID on to others.”

“Fear of leaving the house.”

Some respondents also reported that they do not believe they have changed their view of public space. The total number of respondents was 43 people, however, 23% of them, representing 10 people, commented that they choose a private space and/or do not believe that the perception of public space has changed during the pandemic.

When asked about their affection for Parque da Gare during the COVID-19 pandemic, the majority of respondents opted for the “Nothing has changed” category, representing 35 users (30.7%). However, 33 users (28.9%) stated that “It has changed a lot”. This scenario shows that there was an impact on affection, even if only for some users. Users added that affection may have increased due to the appreciation of public green space — due to long stays at home due to the pandemic, a feeling of freedom and closeness to nature as a necessity after the period of confinement. Also, users reported the following:

“I started to give more value to something that maybe I didn’t before, like socializing with people, seeing children playing, being able to see people’s faces without masks. Being able to go to a public space to enjoy with the family, enjoy life, see the animals. These are small details, but nothing in the world pays for it!”

“It brought joy.”

“I learned to appreciate open spaces more.”

In contrast:

“The Park itself is not a place that I find welcoming, and I personally prefer private environments.”

“The environment could pose a risk of contamination, but of the public spaces available in the city, the Park is a larger space, with more possibility of distancing, so I believe I would feel even safer visiting individually, without crowds.”

5 CONCLUSIONS

Public open spaces are essential elements in the composition of cities. It is through them that social convergence occurs between the different facets of society in a democratic, inclusive and safe way. As a result, new evidence of these environments, as a result of pandemics, has demonstrated their importance and impact in sustaining and improving the quality of life in cities.

The physical space built must provide a higher quality of life for people, also considering the unique characteristics of the location. It was possible to understand that the participants very favorably saw the resumption of the space, with a greater appreciation of the open green space, but still with fear of contamination. Several users stopped visiting public spaces after the pandemic, thus not returning to their previous attendance routine. This may be related to the current occurrence of crowds in the location, possibilities of contagion, or even a preference that came to light after a higher awareness of health safety and social distancing. Also, according to respondents, urban furniture still does not convey the feeling of safety of the total resumption of the space, which is another way of understanding users' concerns.

In addition to these conclusions, other information obtained was that for the majority of respondents, nothing changed in their affection for Parque da Gare, during the COVID-19 pandemic period. This conclusion may also be related to the fact that a sizable portion of respondents stopped using this public space and therefore its symbolic-affective meaning did not change during this period.

As a consequence of this research, it is expected that the findings will contribute to urban planning and future interventions in urban environments, be they parks, squares or common green spaces, mainly in medium-sized cities. The adoption of public policies that recognize the particularities and necessary care in the post-pandemic period has become fundamental to preserving the importance of natural areas in cities and in people's lives.

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REFERENCES

ALVES, I. Cruzamentos Urbanos na Poesia Portuguesa Recente. *Via Atlântica*, São Paulo, v. 10, n. 1, p. 205-221, 2009. Available at: <https://doi.org/10.11606/va.v0i15.50433>. Accessed on: 4 Nov. 2022.

ARAÚJO, M. de F. dos S. **São Sebastião-DF: do sonho à cidade real**. 2009. 140 f. Thesis (Master's in Architecture and Urbanism) - University of Brasília, Brasília, 2009.

BAILEY, T.C.; GATRELL, A.C. **Interactive spatial data analysis**. Harlow: Longman, 1995.

BEIGUELMAN, G. **Coronavida: pandemia, cidade e cultura urbana**. São Paulo: Ecidade, 2020. (Outras palavras, 8).

CAMARA, I. P. **Análise e Percepção dos Usuários do Parque da Gare – Passo Fundo/RS**. 2018. Thesis (Master's in Architecture and Urbanism) – University of Passo Fundo, Passo Fundo, 2018.

DAMÁSIO, A. R. **Em busca de Espinosa: prazer e dor na ciência dos sentimentos**. São Paulo: Cia. das Letras, 2003.

DAMÁSIO, A. **O mistério da Consciência**. São Paulo: Companhia das Letras, 2000.

DESMET, P. Product Emotion. In: SCHIFFERSTEIN, H. N. J.; HEKKERT, P. **Product experience**. Amsterdam: Elsevier, 2008. p.379-397. Available at: https://www.researchgate.net/publication/235700617_Product_Emotion. Accessed on: 4 Nov. 2022.

FARIAS, S. **A Relação das Pessoas com a Paisagem do Parque Urbano da Orla do Guaíba: Usos, Apropriações e Interações em Tempos de Pandemia da Covid-19**. 2021. 180p. Thesis (Master's in Architecture, Urbanism and Landscaping)) - Technology Center, Federal University of Santa Maria, Santa Maria, 2021. Available at: https://repositorio.ufsm.br/bitstream/handle/1/23217/DIS_PPGAUP_2021_FARIAS_SILVIA.pdf?sequence=1&isAllowed=y. Accessed on: 10 Dec. 2022.

FERRETTO, D. **Passo Fundo: estruturação urbana de uma cidade média gaúcha**. 2012. Thesis (Master's in Architecture and Urbanism) - Faculty of Architecture and Urbanism, University de São Paulo, São Paulo, 2012.

IBGE. **Panorama Passo Fundo/RS**. Available at: <https://cidades.ibge.gov.br/brasil/rs/passo-fundo/panorama>. Accessed on: 4 Nov. 2022.

JORDAN, P. Human factors for pleasure in product use. **Applied Ergonomics**, Oxford, v. 29, n. 1, p. 25-33, 1998.

LANA, R. M. **Modelos dinâmicos acoplados para simulação da ecologia do vetor Aedes aegypti**. 2009. 89f. Thesis (Master's in Ecology of Tropical Biomes) - Institute of Exact and Biological Sciences, Federal University of Ouro Preto, Ouro Preto, 2009.

LE CORBUSIER. **A carta de Atenas**. São Paulo: Hucitec, Edusp, 1993. (Estudos Urbanos, 4.; Série Arte e Vida Urbana, 1.).

LEFEBVRE, H. O Conceito de estrutura em Marx. In: BASTIDE, R. (org.). **Usos e Sentidos do Termo Estrutura**. São Paulo: EdUSP, 1975. p.101-107.

MONTEIRO, E. Z.; OLIVEIRA, M. R. S.; MELLO, C. F. L.; FRANÇA, M. S. Encontros coreografados: os espaços públicos e sua resignificação durante a pandemia de Covid-19. In: LYRA, A. P. R. **Cidades e representações**. Rio de Janeiro: Letra Capital, 2020. (Arquitetura e Cidade, 2.). p.286-296. Available at: <https://www.iaar.unicamp.br/ia/wp-content/uploads/sites/7/2021/05/Livro-Artigo-14.pdf>. Accessed on: 4 Sept. 2022.

NORMAN, D. A. **Emotional Design: why we love (or hate) everyday things**. New York: Basic Books, 2004.

PASSO FUNDO (Município). Prefeitura Municipal. **Programa de Desenvolvimento Integrado do Município de Passo Fundo (PRODIN)**. Available at: <https://www.pmpf.rs.gov.br/secretaria-de-planejamento/programa-de-desenvolvimento-integrado-do-municipio-de-passo-fundo-prodin/>. Accessed on: 16 Nov. 2022.

PAYTON, N. Covid was an extraordinary experiment in rethinking street design. **Public Square: A CNU Journal**, Washington, 2021. Available at: <https://www.cnu.org/publicsquare/2021/06/08/covid-was-extraordinary-experiment-rethinking-street-design>. Accessed on: 4 Nov. 2022.

PIPPI, L. G. A. **Social network interaction and behaviors on recreational greenways and their role in enhancing greenway potential**. 2014. 822f. Dissertation (Doctor of Philosophy) - North Carolina State University, Raleigh, 2014.

REZENDE, A. J.; DALMÁCIO, F. Z.; SANT'ANNA, F. P. Características determinantes no desempenho ambiental dos municípios paulistas. **Revista de Administração Pública**, São Paulo, v. 53, n. 2, p. 392-414, mar. 2019. Available at: <https://doi.org/10.1590/0034-761220170342>. Accessed on: 4 Nov. 2022.

RHEINGANTZ, P. A.; AZEVEDO, G. A.; BRASILEIRO, A.; ALCANTARA, D. de; QUEIROZ, M. **Observando a qualidade do lugar**: procedimentos para a avaliação pós-ocupação. Rio de Janeiro: UFRJ; FAU, 2009. Available at: https://www.researchgate.net/publication/308740248_Observando_a_Qualidade_do_Lugar_procedimentos_para_a_avaliacao_pos-ocupacao. Accessed on: 5 Jun. 2022.

RUSSO, B.; HEKKERT, P. Sobre amar um produto: os princípios fundamentais. *In*: MONT'ALVÃO, C.; DAMAZIO, V. (org.). **Design, ergonomia e emoção**. Rio de Janeiro: Mauad X: FAPERJ, 2008. p. 31-49.