

## Urban space living in a changing city: sidewalks of Curitiba

### Espaço urbano viver numa cidade em mudança: calçadas de Curitiba

DOI:10.34117/bjdv8n4-364

Recebimento dos originais: 21/02/2022

Aceitação para publicação: 31/03/2022

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#### ABSTRACT

This article aims to discuss the experience of the urban space, focusing on the conditions for pedestrian circulation, in the use of sidewalks, in Curitiba-PR, Brazil. In this city, as well as in the rest of the country, the use of public space is changing due to several factors, among them, the following stand out: the aging of the population and the greater participation of minority groups in decisions regarding public space, such as pedestrian groups. There was a problematic situation consisting of urban spaces designed primarily for automobiles, making it difficult for pedestrians to use such space or even preventing it in many cases. From this problem, it is questioned how the pedestrian, in three points of view, is using the sidewalks in Curitiba: a) the risks of being trampled; b) accessibility; and c) in terms of constructions and design quality. The assumption adopted is that the use of urban space by the pedestrian is a fundamental factor for sustainability by providing the practices of living and collective enjoyment of the same, by establishing relationships of sociability, physical exercises, recreation and leisure. The methodology used was based on the collection of information from municipal public agencies and bibliographical review of literature and academic research, using some categories of analysis: the public user; the building pattern; environmental conditions and municipal management practices. An analysis was made of the Strategic Plan of Sidewalks (PlanCal) of Curitiba and also the legislation regarding the construction and maintenance of public tours. The preliminary results showed that, in a city where the public transportation system was modeled on the Bus Rapid Transit (BRT) model, there is currently a high rate of individual motorization, the highest growth between 2001 and 2014 in the metropolitan Brazilian Regions areas, and an attention to the pedestrian that demands greater detailing and prioritization of work, investments and maintenance. Among the difficulties for the pedestrian are the following: the risks of being run over; low quality of accessibility; and problems in the execution and maintenance of the public tours, besides the need to expand the spaces destined to walking. This paper was originally published at Changing Cities 3rd International Conference on Changing Cities: Spatial, Design, Landscape & Socio-economic Dimensions- 2017. Here is published an update version.

**Keywords:** urban sustainability, sidewalks, pedestrians, Curitiba- Brazil, urban space.

## RESUMO

Este artigo visa discutir a experiência do espaço urbano, centrando-se nas condições de circulação pedonal, na utilização de passeios, em Curitiba-PR, Brasil. Nesta cidade, bem como no resto do país, o uso do espaço público está a mudar devido a vários factores, entre os quais se destacam: o envelhecimento da população e a maior participação de grupos minoritários nas decisões relativas ao espaço público, tais como os grupos pedestres. Houve uma situação problemática que consistia em espaços urbanos concebidos principalmente para automóveis, dificultando a utilização desse espaço por parte dos peões ou mesmo impedindo em muitos casos a sua utilização. A partir deste problema, questiona-se como é que o peão, em três pontos de vista, está a utilizar as calçadas em Curitiba: a) os riscos de ser pisoteado; b) a acessibilidade; e c) em termos de construções e qualidade de design. O pressuposto adoptado é que a utilização do espaço urbano pelo peão é um factor fundamental para a sustentabilidade ao proporcionar as práticas de vida e de fruição colectiva do mesmo, ao estabelecer relações de sociabilidade, exercícios físicos, recreação e lazer. A metodologia utilizada baseou-se na recolha de informação dos organismos públicos municipais e na revisão bibliográfica de literatura e investigação académica, utilizando algumas categorias de análise: o utilizador público; o padrão de construção; as condições ambientais e as práticas de gestão municipal. Foi feita uma análise do Plano Estratégico das Calçadas (PlanCal) de Curitiba e também da legislação relativa à construção e manutenção de passeios públicos. Os resultados preliminares mostraram que, numa cidade onde o sistema de transporte público foi modelado no modelo Bus Rapid Transit (BRT), existe actualmente uma elevada taxa de motorização individual, o maior crescimento entre 2001 e 2014 nas regiões metropolitanas brasileiras, e uma atenção ao peão que exige maior detalhe e priorização de trabalho, investimentos e manutenção. Entre as dificuldades para o peão estão: os riscos de ser atropelado; a baixa qualidade de acessibilidade; e problemas na execução e manutenção dos passeios públicos, para além da necessidade de expandir os espaços destinados ao passeio a pé. Este artigo foi originalmente publicado na 3ª Conferência Internacional sobre Cidades em Mudança: Espaço, Design, Paisagem e Dimensões Sócio-económicas - 2017. Aqui é publicada uma versão actualizada.

**Palavras-chave:** sustentabilidade urbana, passeios, pedestres, Curitiba- Brasil, espaço urbano.

## 1 INTRODUCTION

The contemporary society is majority urban, and there is a tendency to increase the amount of people living in cities, especially in South America and Brazil. Most researchers recognize contemporary cities have been spaces searching for vitality and sustainability. However, it is known from the experience of people who live in the cities, this space brings about conditions which are identified as excess, such as traffic, noise and immobility. In the same urban space, there is the loss of coexistence, difficulty to identification with the citizenship condition, isolation feeling. These characteristics are deriving from Urban Sociology (Barreira, 2016). Therefore, metropolitan urban spaces require from planners care to be improved: connivance and community experiences, decrease excess noise, immobility and isolation feeling. In this sense, the propositions of improvement for urban mobility, special attention to walking locomotion,

having as goals: improvement of coexistence, community experiences and decrease of stressing factors such as traffic and noise, can be efficient.

To Sampson (2017), the efforts to improve the levels of sustainability in cities have been done by proposing actions for changes in physical infrastructure and recovering urban ecosystems. Very little attention has been given to social sustainability. Thus, aspects as social segregation, politic engagement, racial conflicts, urban transportation routes contributing to social segregation have not been treated as sustainability dimensions. Sampson conducted experiments with these aspects, through econometrics procedures, in three North American cities ascertaining these are key features for sustainability.

The urban form is the result of many social and economic processes. The complexity of the urban form still harbours cultural and natural aspects. In this way, the urban configuration, and its consideration, or not, for the use of pedestrians are the result of all these complex processes. For Castro et. al (2021) transport systems influence urban sprawl. In addition, the preferred mode of transport, or more used by the population, contributes to the organization of the urban form.

Searching for more sustainable cities, actions such as providing more pleasant places to people use and stay stand out. It is understood in the sphere of urban sustainability expanded conceptualization, it is important the efficiency of spaces that correspond to what users need or look for, mainly considering more inclusive and democratic development. The sidewalks in a city are a good example of functional place, as well important social and cultural practices. In order to use more intensely spaces shared by everyone, users can support policies, programs, projects, and actions aimed at a promotion of more sustainability, contributing in a more embracing way to the environment in a democratic context with social participation. This space usufruct can provide a belong and co-author feeling in the organization or renewing and recycling spaces in the city (Gehl, 2011) .

One of the tendencies in micro scale urban projects is the attention to external space, seeking to destine more options to people's use. These places were many times made parking lots and garages very recently. They have currently received nobler uses as walks, bicycle-friendly design, or physical exercises places or leisure, decreasing the space to automobiles (Gehl, 2014).

## 2 MATERIALS AND METHODS

A bibliographical review was done as well as analyses of official documents such as Curitiba's Sidewalk Plan (Plano de Calçadas de Curitiba – PlanCal). The references used include a review about mobility on foot, sustainability and the use of public spaces. The observations about Curitiba included academic work that stated about the urban mobility theme in three standpoints: the risks of pedestrian/motor vehicle crash, accessibility, the construction quality, and sidewalks design. There were also included references treating the pedestrian perception about walking.

## 3 RESULTS AND DISCUSSION

### 3.1 WALKABILITY, LIVING SPACE AND SUSTAINABILITY

Sustainability is one of the most important issues nowadays. Discussing how changes in urban areas can occur to generate sustainability also includes the theme of urban mobility. Nevertheless, in this paper it is proposed analyses of the urban space that consider the act of walking as a form to improve urban mobility and, among other results, to create sustainability. If the living urban space is more walkable, this fact can decrease the use of cars and contribute to pollute less the air; reduce noise; increase social interaction among neighbors; and increase the connection in the public transport. This would be an efficient schedule for a better city.

However, there is not a full consensus about all benefits of increasing the walkability. Jun and Hur argument there is not an agreement, for example, if the walkability improves the social interaction and sense of community. The authors consider that many studies show the relationship between walkability and social environment is weak or not significant. On the other hand, in other research, this relationship is considered strong or significant. Jun and Hur (2015), consider that more empirical studies are needed on this theme, and taking into account other factors contributing to social environment, such as: both physical and perceived walkability, demographic characteristics, and neighborhood socio-economic characteristics.

In Brazil and in Curitiba, social differences influence in a decisive manner the use of sidewalk spaces. Many times there is a very adequate physical space to walk, but in neighbours where people do not use to walk, in these places there is a high level of individual motorization. On the other hand, in low income neighbourhoods, there are no sidewalks, these are places where most people need to walk to get to public transport connections (Faria, 2016). According to Malatesta (2013), this condition is linked to politics and law related to sidewalk construction in Brazil, which delegates the responsibility of building sidewalks to the adjacent property owner,

the city has the role of inspector. This, neighbourhoods where the area residents do not have access to resources to build sidewalks, sidewalks do not exist.<sup>1</sup>

### 3.2 URBAN MOBILITY IN CURITIBA- BRAZIL

It is necessary to have an integrated policy that promotes and subsidizes the practices of mobility with low impact, so a sustainable urbanism can evolve, in this case, aiming at decreasing the space to motor vehicles. The public policy guidelines for urban and mobility planning are an example of field to be perfectly integrated, which does not always happen. This policy integration is not being observable in the city of Curitiba, south Brazil, which is known by proposals related to urban planning, in which the public bus transport system was featured - System BRT (Lima, 2015) .

Vasconcelos and Faria (2021) in a study of urban mobility in the metropolitan perspective for Curitiba indicate that, historically, many positive aspects can be pointed out, namely:

- a) urban policies, namely the trinary system of roads that prioritized collective transport in urban land use;
- b) Implementation of the BUS RAPID TRAIN (BRT) project;
- c) Expansion of the BRT project to the metropolis;
- d) Mobility model for Brazil and the world.

Consider that there are recently signs of saturation of the successful model for urban mobility in Curitiba. Among the aspects that indicate a setback, the following stand out, according to Vasconcelos and Faria (2021):

- a) disintegration of part of the system in 2015;
- b) management difficulties at the metropolitan level;
- c) higher cost for people with lower income;
- d) large number of non-integrated lines (39%) that circulate between Municipalities in the Metropolitan Region of Curitiba.

Among the various research about Curitiba, Noronha (2015) studied the evolution of motor displacement in Curitiba and in the North American city of Portland –OR – a reference of urban sustainability – regarding the private car fleet and the use of collective transport, under the perspective of urban mobility from 2006 to 2013. This author highlights both cases pursue resolutions to decrease the dependence of private cars and increase the use of public

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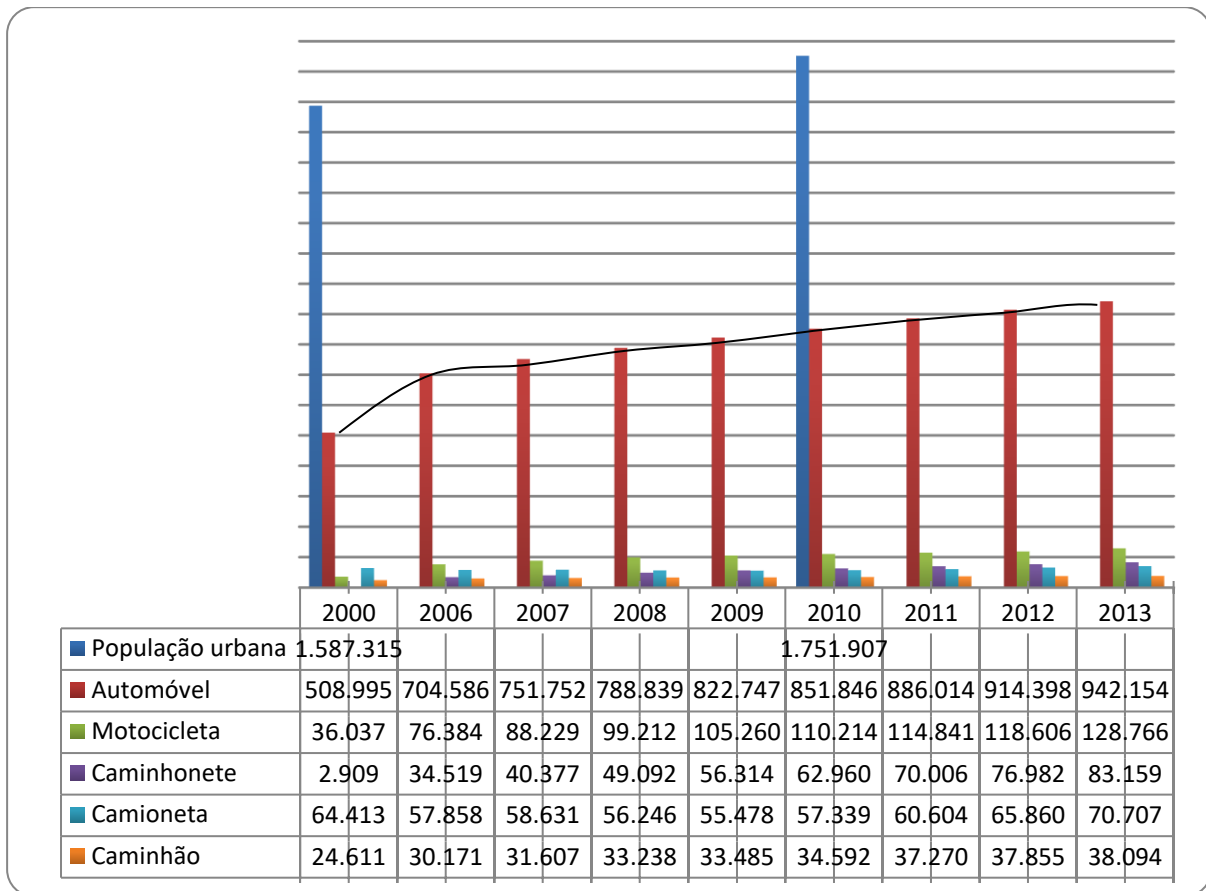
<sup>1</sup> According to interviews made in Curitiba, 2015. Faria, H. M. *Andar a pé em Curitiba, mobilidade urbana, sustentabilidade e percepção social*. Programa de Pós-doutorado- Relatório Final. Programa de Pós-Graduação em Meio Ambiente e Desenvolvimento, da Universidade Federal do Paraná (PPG-MADE). Brazil

transportation. As a result, Noronha's research (2015) points Curitiba has had an increase of 39.77% relating to private car fleet in the period from 2006 to 2013, and the decrease of commute by bus from 2011. Meanwhile, in Portland – OR, it was observed an increase of 1.25% of private car fleet from 2006 to 2013 and an even higher increase (3.19%) in the amount of trips by public transport. Although, this situation in Portland –OR is a result of a sequence of public policies implemented in a complementary, coherent, progressive way. There are still a lot of improvements to be diminished the use of cars and, consequently, rise the possibility of casual use of public spaces to commuting done by other ways that not by automobiles. Nevertheless, Noronha explains that in the period from 1990 to 2010, the commute by bicycles increased from 1% to 6%. "In 1996, the city counted on less than 150 km of bike lanes, meanwhile, in 2008, there were more than 300km predetermined to bicycles. The use of public also increased, according to the last demographic Brazilian census. The increase was between 10% to 12% (Noronha, 2015).

It is important to notice the possibility the gradual implementation of planning instruments and urban management that progress into achievements in the city context. The city of Portland has been implementing its embracing policies towards a higher sustainability and, in relation to commuting on foot, it established very specific goals, aiming at doubling the amount of cyclists and pedestrians in the period of twenty years, between 2015 and 2035.

Although, in Curitiba, the disintegration of federal policies of incentive to producing and commercialization of private vehicles reverberates. It can be verified in picture 1 the increase of private car fleet:

Picture 1 – Population in Curitiba – PR and the private vehicles fleet per category in 2000 and the period from 2006 and 2013. Fonte: NORONHA (2015), p. 105



The study done in many Brazilian cities, where the road system occupies from 70% to 80% of spaces, de acordo com Vasconcellos, 2002. This situation is the result of the construction of an infrastructure that also restricts the use of urban space by public transport, which occupies, on average, 17% of urban roads (Vasconcellos, 2013).

In Curitiba, automobiles occupy 79.2% of the roads and the buses 20.7% (Noronha, 2015). Analysing the total amount of fleet proportionally to private car fleet increased a lot more than the use of public transport in Curitiba – PR and the Central Urban Center of Curitiba (Núcleo Urbano Central de Curitiba – NUC), constituted by 14 counties including Curitiba.

Paese (2015), states that in the period from 2001 to 2012, there was a considerable rise in the number of individual vehicles which followed the population growth. However, the number of passengers using the RIT (Integrated Net of Transportation in Curitiba) was kept stable. Although, the relation between the numbers cannot be taken as direct, in other words, when the number of vehicles increases, there is a drop in the use of collective transport as a result. Since other parameters must be considered for this analysis, public transport has become less attractive in this period.

In Brazil, after almost 17 years of processing in the National Congress, the bill n. 12.587 was approved in 2012, which institutes the Urban Mobility National Policy. This law regulates the planning and regulation of mobility in Brazilian cities. The Urban National Mobility Policy is unequivocal to indicate the need to encourage the non-motorized commute which are not motorized transport and encourage the use of public transport (Rubim e Leitão, 2016).

In consonance with the national policy, the city of Curitiba presented two programs regarding the non-motorized transport: the Calm Area Project (Projeto Área Calma), which began in 2015, and the Sidewalk Strategic Plan, from 2014. On-the-spot visits in the city, and also, by analysing these programs, it was perceived that these actions are only circumscribed to the central area of Curitiba. Such programs signalize changes, but a serie of problems persist related to pedestrian mobility in Curitiba.

### 3.3 SIDEWALKS, AND THE RISKS OF FALLS AND PEDESTRIAN-VEHICLE CRASHES

The pedestrian perceptions about sidewalks in Curitiba was gathered through thematic interviews, using the social perception model and discourse analyses, in 2015. These interviews were conducted in Curitiba, in neighborhoods close to the central area (Faria, 2019). The interviewees reported, among their major concerns, the risks of falls, due to sidewalk bad conditions, the presence of holes, uneven pavement, and lack of traffic signs. Other frequent concern was related to crossing the streets, due to crosswalks, which are often found unmarked, and pedestrian signs, mainly in the city outskirts.

Silva (2008) employed a set of syntax analyses in the urban space of Curitiba and walkability parameters, to relate the places where the risks of people being hit by a car are high, with aspects of the urban design concerning the pedestrian and commutes on foot, in all city of Curitiba. In order to make this relation, the areas where there were pedestrian-vehicle crashes in the years of 2005, 2006 and 2007 were marked on maps. Criteria of walkability were adopted by Voorhees Transportation Policy Institute, Rutgers University, Bloustein School of Planning & Public Policy. Among the evaluated areas, only one presented the walkability measure above the worst five levels from the original classification in that study. This place is Santa Felicidade neighborhood area, a touristic point.

It was found evidences that pedestrians in Curitiba concern about being hit by a car and falling on sidewalks. In this sense, it is add the need to invest in improvement and maintenance of the successful infrastructure for walking, as the Calm Area Project which was a success, even partially in the reduction of people being hit by cars and accident records, and the Strategic Plan of Sidewalks (PlanCal) proposal.



### 3.4 CITY HALL INITIATIVES TO WALKING MOBILITY AND THE PEDESTRIAN CIRCULATION

The city's public power proposed, in 2015, the Calm Area Project which consists in lowering the speed limit for cars in the central area in Curitiba (up to 40 km/h); the expansion of areas for cyclists, and the reorganization of pedestrian zone. The Calm Area has 133 crossing points under electronic inspection to guarantee the speed limit of 40 Km/h and respect to traffic sign. More than 330 thousands vehicles and 700 thousands pedestrian travel in this area [1]. According to information from online news website uol (Paraná website) [2], there was a reduction of 50 %of traffic fines in the area one year after the implantation of the project. According to the an analyses made by the City Hall, the record of accidents significantly also decreased, less than 32.54% accidents were recorded in the total accident calls in the area and the record of less 24.21% in the total accidents than the 11 first months before the project started. The record of fatal accidents was the same than before [3].

The Strategic Plan of Sidewalks (PlanCal), accomplished by the Urban Research and Planning Institute of Curitiba (Instituto de Pesquisa e Planejamento Urbano de Curitiba - IPPUC), in the end of 2014, presents as a proposal the recovering and implematation of 234 kilometers of sidewlaks around public equipment, integrating the Cycling Plan of Curitiba (Plano Cicloviário de Curitiba). According to the news from the Mobilize organization's website [4], the Plan was elaborated to “guarantee more accessibility and safety to pedestrians, as well as, to promote the integration with the Cycling Plan of the city. The iniciative set as goal the revitalization of 119 kilometers of sidewalks and the implematation of 115 kilometers of new sidewalks. The Plan predicts the implematation of pedestrian zones in the regions in the city and the change of legislation that considers the issue. Street lighting is also contemplated with the ‘Light Paths’ porject (projeto Caminhos da Luz) and ‘Safe Route to School’ project (projeto Rota Segura à Escola), which improved the safety conditions for children when going to schools.” The proposals of the plan are very integrative to improvements of commute on foot in Curitiba, but the part of the Project which was already executed, with recovered sidewalks, is exclusively in the central area of the city. A piece of news from Gazeta do Povo Newspaper shows that only part of the project started up to 2015, and the City Hall claims that does not have enough resources to precede the exceution of the Plan [23]. Until 2017 only 31 kilometers of sidewalks were recovered, according to IPPUC(2017) [6].

Curitiba, through the plans mentioned, is inserting in its planning the pedestrian mobility. Despite the fact that the investments made are in initial phase, they presented good results,

especially regarding the Calm Area Project. Continuing and expanding both projects is highly recommended.

### 3.5 ACCESSIBILITY AND CONSTRUCTION DESIGN QUALITY OF SIDEWALKS IN THE CENTRAL AREA OF CURITIBA

The urban accessibility is an indispensable condition to the use of spaces, as Wang, Mateo-Brabiano and Brown (2013) point out in their studies about this issue, on the premise “it becomes imperative that the provision of urban parks and open spaces is accompanied by a fundamental need for ensuring adequate access to such facilities”. In Brazil, the federal government determines the general guidelines for mobility through the City Ministry, but it is the city responsibility to detail them, establishing policies for the urban area of the city; creation and application of legal instruments of planning and management, which includes maintenance of spaces.

The city of Curitiba has developed urban planning in a systematic way around the twentieth century, emphasizing the urban mobility system, the accessibility has been addressed since the 1980s. However, only the City Director Plan (Plano Diretor Municipal), approved in 2004, treated specifically about accessibility (mentioning people with physical disabilities or reduced mobility), as an item in the development guidelines that cover social, economic, and cultural scopes. In 2014, in the review of the Plan, the non-motorized circulation and the principles of Universal Design are addressed, under the aegis of equity in use of public spaces for circulation. Muzillo (2019) points out that among the proposals of this plan, there are also definitions for patterns for building accessible sidewalks – even, solid, stable, and non-slip – expansion of the sidewalk system and public spaces for pedestrian circulation, besides the development of projects and actions such as adaptation of pre-existent spaces and elaboration of Pedestrianization Plan and Sidewalks [3].

Researching the central area of Curitiba, Muzillo (2019) analyzed quantitative and qualitative aspects of sidewalks, such as width, uniformity, texture, and inclination, the specific lane for pedestrians, applying the criteria of analyses related to the sidewalk physical conditions, considering the technical Brazilian regulations, the updated theoretical framework, and the federal and the city legislations. The methodological procedures resulted in the diagnosis of accessibility conditions (favorable/unfavorable), point to existent flaws, and promoting the discussion about the importance, not only implementation, but also the management of public spaces at large, and particularly the pavement. The conclusion of the research indicated that in the central area of Curitiba, the conditions of accessibility on the sidewalks are average,

emphasizing four itens among the set studied: a) Excessive longitudinal inclination, repairing this condition would demand construction, which besides requiring financial costs and workforce, it would compromise access to buildings and other streets. In this case, the guideline proposed is the creation of flat areas at intervals of about 50 meters, so the user can rest; b) Uneven surface: when there is the possibility of replacing the material, the author suggests the use of concrete plaques, because it is a rough material and it enables a safer circulation for pedestrians; c) Passage width and the presence of obstacles: the only problem found was the obstruction by urban furniture which has a low cost and complex solution; d) Curbs: there are a lot of poor condition curbs, or unsignalized, it is recommended the reconstruction.

As the general guidelines to improve the urban mobility conditions in Curitiba, Muzillo (2019) calls attention to five items: professional construction education; increase the frequency of inspection on accessibility constructions; explanation to people about the importance of communication with the city administration to report places in poor conditions of accessibility; intensify the integrated action between the public power and institutions focused on people with disabilities' right to accessibility; encouragement to research and academic work on the theme.

## 4 CONCLUSIONS

### 4.1 URBAN SPACE LIVING AND SIDEWALKS OF CURITIBA

From a perspective of achieving sustainability, the promotion of transports that are not motorized and the commute on foot consolidates in the urban mobility national policy in Brazil, at least in intention (Rubin e Leitão, 2013). This intent expressed in this Law is also associated to policies to reduce the emission of carbon and atmospheric pollution (Faria e Lima, 2019). Other factor that reverberates the promotion of going to places on foot is the search for traffic that permits to gain time during commute, levels that are still inadequate in the main metropolitan centers in Brazil, and also in Curitiba (Faria e Lima, 2016). However, besides the environmental and urban policies seeking the improvement of quality of life, the act of walking should be seen as an intrinsic action to human beings. When a citizen walks, one experiences and gets closer to natural and built environments, enabling the expansion of possibilities of comprehension and performance in the community where one lives.

It is known the act of walking is a way to experience the urban space. This dimension of the use of the space, the perception of the city and its environment is complete. Bollnow (2009), states that when one walks the experience of the landscape is still present, and when one drives and rises the speed, this experience is gradually lost. This observation is also object in the field of urban space studies, which involves architects, urbanists, geographers, psicologists, and

philosophers among others, creating an academic area connected to analyses of social and environmental perception of urban space (Del rio, Duarte e Rheingantz, 2002). This way, investigating pedestrian perceptions about one's environment brings abundance to data and also amplified possibilities of analyses.

This paper aimed at understanding the use of sidewalks in Curitiba from a set of references, relating the possibilities to new uses or improvement in the uses to a changing city. There are initiatives from the city related to this issue – Calm Area Project, from 2015, and the Strategic Sidewalk Plan, from 2014, however there are still extremely incipient. The interviews conducted in 2015, by Faria (2016), show that in practice the pedestrians are still under risky situations: falls, pedestrian-vehicle crashes, and also vulnerability, related to urban violence, fear of robbery.

Adding to this, there is the fact of social inequality in urban context in Brazil and in Curitiba, revealing a contingent growth of homeless people living on the streets. A research from the private local communication institute (Paraná OnLine) revealed data that indicated the existence of 4,500 homeless people in the city in 2015. This amount has risen about 60% since 2008, this period coincided with the world and national economic crises.

Pedestrians in a metropolitan area use other modes of transport, often using buses. For the population that uses public transport in Brazil, there is a great inequality in terms of transport infrastructure. Vasconcellos (2013) argues that only 17% of the available roads are used by buses in Brazil. In addition, the systems operate at an average of 2 vehicles per hour. In this way, there is pressure on the infrastructure for pedestrians in public transport terminals, commercial and service areas, which must be taken into account in terms of their quality. In any case, the infrastructure for pedestrians should be privileged within the transport system, but in Brazil this has not been the case.

It was possible to notice that there is recognition of the need to integrate the thoughts of sidewalk uses when urban project and planning are created, and other urban policies. The idea of system, which is highly widespread in planning transport, starts to have a more important dimension in the urban mobility concept. The pedestrian perceptions, and even initiatives from the public power, even if too initial, reflect the expansion view of the concept of urban transport and the concept of urban mobility. Urban mobility includes the idea of experience, and performance in urban space. In this way, a city in transformation towards improving the quality of life and environmental sustainability must include in its proposals the commute on foot, not only because this can improve the levels related to socioeconomic environmental parameters, but because this inclusion enables the expansion of community and environmental experiences.

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