Urban prototyping on a pedestrian walkway in Sao Paulo/SP-Brazil, according the "12 criteria of good public space"

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Abstract

The priority of cars in city design produced by the 20th century urban planning resulted the erosion of contemporary urban cities. Such situation led, in recent decades, to the valuation of non motorized mobility, exemplified by traffic calming, through studies and interventions supported by concepts as placemaking, 'cities for people' and walkable urbanism. These concepts are based on the demand for urban living spaces and for more interaction between people, valuing the pedestrian and urban life. This article will describe an urban intervention performed on an elevated walkway in Sao Paulo, as a result of a collaborative action that prototyped ideas as working method, according to the recent concept of tactical urbanism. For technical support, we adopted the "12 Criteria of good public space", which seek to assess the space performance in compliance with human scale, favoring everyday use by pedestrians.

Keywords

Tactical urbanism, prototype, urban design, urbanity, public space

Introduction

One of the main factors that determine the quality of life in urban centers is the vitality of the public spaces, true stages of social life. Thus, the vitality of streets has a special role, such as the walkways, footbridges and several other passages that conduct flows of people.

However, the disproportionate division of urban space between motorized and non-motorized modes has produced repulsive passages for pedestrians as, for example, the elevated walkways. Built to allow a fast and uninterrupted flow of cars, these walkways carve in the urban landscape a clear preference given to road mode over the pedestrian by the current global urban model. Walking through them usually means facing unsolved gaps between long stairwells or steep ramps, exposure to bad weather, a non-place experience that makes you want to leave as fast as possible. In order to avoid such nuisance, pedestrians commonly try their luck crossing under its structure and amid the high traffic, often resulting in fatal victims of traffic accidents.

The experience of walking have a great influence in the access to the city, its services and products, the possibility of meeting people and the contact with human diversity. Thus, the recent approach of walkable urbanism seeks to rescue the importance of streets and to value the pedestrian in urban areas as a way of democratization and assurance of city vitality.

This new approach of the city has been developed since the second half of the twentieth century, from studies of authors like Jane Jacobs, Donald Appleyard and Jan Gehl, until it gained greater visibility with the recent urban interventions promoted in cities such as London and New York, which has been adopting urban design techniques oriented to traffic calming and respect for human scale in public spaces. It is noteworthy that the success of these interventions resulted from good urban design associated with public policy and urban planning concepts that ensure the compactness of these cities, with high density, diversity of uses, good public transportation systems and infrastructure for non-motorized mobility.

The good design, of which depends the walkable urbanism, seeks to improve the relationship between the urban space and the human body, enriching the landscape of the city at eye level, as advocated by the concept of 'cities for people', particularly disseminated in the work of Jan Gehl.

Trying to understand what makes certain spaces more or less attractive to people, Gehl and his team came to what they defined as the "12 criteria of good public space" (GEHL, 2010). Organized into three categories - protection, comfort and pleasure - the criteria evaluate public space from their basic needs to some extra qualities desirable to urban vitality, and can be used to assess the performance of any public space.

Seeking to gather initiatives like these in a public database, a Brazilian project inspired by the work of Jan Gehl, also called "Cities for People", visited several cities in the world to collect successful examples of good experiences promoted by the government, private sector, third sector and society, both organized or not, aiming to humanize the urban environment. To put into practice the learning gathered in this database, the project "Cities for People" held in São Paulo, between 15th and 20th September 2014, a workshop of micro urban intervention prototyping. A pedestrian walkway (Passarela Prof. Dr. Emílio Athié, also known as Passarela Rebouças) was chosen for this action. The walkway connects the Al. Franca with the Heart Institute - Incor - over Av. Rebouças, and gives access to an exclusive bus corridor.

This article will demonstrate the experience learned with the "1st Cities for People Workshop". A multidisciplinary team adopted the tactical urbanism approach and used the "12 criteria of good public space" to prototype the activation of the mentioned walkway, with the project called *Passanela*. Not by chance, the location selected for the intervention was an infrastructure used for walking and waiting. The purpose of Passanela was to encourage the use, improve the experience of crossing the walkway, and also to inspire and contribute to transform other walkways in Brazil and the world.

Bibliographic review

For a necessary enhancement of public space and pedestrians

It was the act of walking which led humanity to create architecture and hence cities. The need of food and the symbolic construction of the territory to guarantee survival, led hunters and shepherds of the Paleolithic to place in natural space the first milestone object of anthropization - the menhir - from which all the architecture was developed (Careri, 2013).

The choices that people make from streets, avenues and walkways that walk along, directly influence the way they interact with the city and with others. However, the capitalist production of urban space supported by the industrial revolution and by the zoning practiced in modern urbanism, caused a real invasion of highways in cities' shapes. Jacobs (2011) described this process as "erosion of the cities'.

The prioritization of the roads over non-motorized transportation has been consuming the urban space with infrastructures dedicated to car flows in prejudice to the pedestrians and the act of walking, although walking by foot is still the most common way of moving in the city. According to the National Association of Public Transport - ANTP - in 2011 the act of walking corresponded to 36.8% of trips in Brazil, being the predominant mode.

The infrastructures dedicated to pedestrians, with less value in the construction of urban space, generally offer negative experiences and are generally avoided, as we observed in this elevated walkway. If elevated walkways are built to improve pedestrian safety, they also represent a clear prioritization of the

car, that despite having engine and carrying people that are seated, always have their route eased, leaving the obstacles for the pedestrian to overcome.

However, Jacobs (2011) warned still in the 1960s that dealing with this problem as a war between cars and people - usually building infrastructures completely separated to one another - is simplistic and approaches the problem in the wrong way. "You can not separate the consideration for city pedestrians from the consideration for diversity, the vitality and the concentration of uses." (JACOBS, 2011, p. 388).

From these criticisms, Jacobs made several proposals, summarized in **Table 1**, which consolidate a real apology for urban vitality, only possible from the observation of the real city and the appreciation of the streets and public spaces as support for social interaction. Jacobs was one of the first voices of traffic calming, understood as a trend or set of techniques to mitigate the impact of transit through car restriction policies.

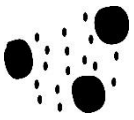
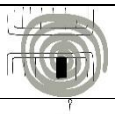
Valuation of city's daily life	The use of sidewalks as a guarantee of safety and security	
	Clear separation between public space and private space	
	Buildings facing the street	
	Diversity of uses during day and night	
	Sidewalks for integrating children with the neighborhood and its surroundings	
	Parks, public squares and courtyards visual complexity and uses	
	Self-management rather than self-sufficiency	
The combination of uses for the economic performance of cities	Combined main uses	
	Short blocks	
	Old buildings (affordable)	
	Population and buildings density	
Forces of decline and recovery	Neutralization of border areas	
	Recovery of tenements	
Management of ordered complexity	Housing subsidy	
	Reduction of cars	
	Urban visual order	

Table 1: Jane Jacobs Urban Theory

The research coordinated by Donald Appleyard in American cities of the late 1960s reinforced Jacobs ideas about the negative impact of high vehicle traffic in social life and in the sense of belonging between people and places. From the perception of the inhabitants and comparing streets with different traffic levels - heavy, moderate and light - Appleyard concluded that in light traffic streets people used to have a more active social life among neighbours and acquaintances and that they tended to consider the external space and public streets as an extension of their territory, contrary to what was happening in streets with more traffic (APPLEYARD and LINTELL, 1972). **Figure 1** illustrates the different levels of social interaction among three streets.

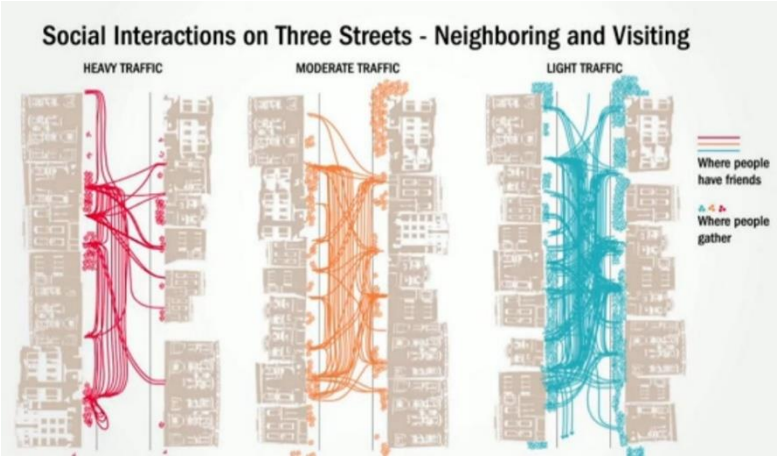


Figura 1: Social interaction corresponding to the street traffic level, according to Appleyard. The lines represent the friendship links between people and the dots mark the places where they gather, in streets with different traffic intensities (red - street with high traffic / orange - street with moderate traffic / Blue - street with light traffic). Source: https://goo.gl/Kgsuwx, acessado em 30/11/14

Studies such as the Appleyard's and urban interventions in recent decades throughout the world strengthened approaches as the 'walkable urbanism', recognizing the importance of public space quality and valuing non-motorized transport modes to promote access to the city and greater human and social development. Thus, the socially fairly use of soil is as important as the quality of the design of the infrastructures.

Studies of Jan Gehl, mainly developed in European cities also from the 1960s, identified useful urban design instruments for the assessment of public spaces. His approach starts from the observation of human feelings, and not just the environment physical standards, which led him to defend the compact, pleasant city at eye level (GEHL, 2010). From studies carried out in different cities, his team identified a design process called "12 criteria of good public space", an excellent urban design tool for the enhancement of pedestrian and qualification of public space, described in **Table 2**.

Such process seeks to meet three progressive levels of perception and interaction between the human body and the physical space in the following order:

1st - To allow the use of the space: PROTECTION - To minimize unpleasant experiences protecting the person from crimes and from the high traffic of vehicles, more easily accessible in places with mixed-use and active facades. To protect against uncomfortable sensory experiences as stench, pollution and adverse weather;

2nd - To attract and retain people in the space: COMFORT - To offer conditions for movement and stay in the environment, offering opportunities to walk freely, sit, look, listen and talk. To support both the active and passive recreation, allow self expression;

3rd - For people to want new experiences in the same space: PLEASURE - To give a good sensory experience and the opportunity to take advantage of the positive climate. It depends on good architecture and design respecting human scale (GEMZOE, 2006).

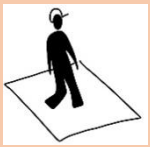
PROTECTION	**1.** TRAFFIC AND ACCIDENTS  a) Protection for pedestrians; b) eliminating fear of traffic.	**2.** CRIME AND VIOLENCE  a) Lively public realm; b) Eyes on the street; c) Overlapping functions day and night; d) Good lightning.	**3.** UNPLEASANT SENSORY EXPERIENCES  a) Wind; b) Rain/snow; c) Cold/heat; d) Pollution; e) Dust, noise, glare.
COMFORT	**4.**OPPORTUNITIES TO WALK  a) Room for walking; b) No obstacles; c) Good surfaces; d) Accessibility for everyone; e) Interesting façades.	**5.** OPPORTUNITIES TO STAND/STAY  a) Attractive zones for standing/staying; b) Supports for standing.	**6.**OPPORTUNITIES TO SIT  a) Zones for sitting; b) Utilizing advantages: view, sun, people; c) Good places to sit; d) Benches for resting.
	7. OPPORTUNITIES TO SEE  a) Reasonable viewing distances; b) Unhindered sightlines; c) Interesting views; d) Lightning (when dark).	**8.** OPPORTUNITIES TO TALK AND LISTEN  a) Low noise levels; b) Street furniture that provides "talkscapes".	**9.**OPPORTUNITIES TO PLAY AND EXERCISE  a) Invitations for creativity, physical activity, exercise and play; b) By day and night; c) In summer and winter.
DELIGHT	**10.** HUMAN SCALE  a) Buildings and spaces designed to human scale;	**11.** POSITIVE ASPECTS OF CLIMATE  a) Sun/shade; b) Heat/coolness; c) Breeze.	**12.** POSITIVE SENSORY EXPERIENCES  a) Good design and detailing; b) Good materials; c) Fine views; d) Trees, plants, water.

Table 2 –12 criteria of good public space
Source: Adapted from GEHL, 2010, p.239

Cities for People and People for Cities

Another concept advocated in Gehl's work is that urban life is a process: people attract more people (GEHL, 2011). The use of streets and public spaces by people, in this process, acquires a civic engagement nature, once the city's ownership is the initial step to provide it with vitality.

The power of attraction exercised by a group of people in other people and leading them to occupy urban space was also found in surveys conducted by William Whyte in North American cities during the 1970s. Observing the behavior of people in small urban spaces, Whyte concluded the importance of good urban

design, suitable to the human scale, to assure the vitality of public spaces (WHYTE, 1980). And that design should start from the close observation on how people use the spaces and how they would like to use it, encouraging civic engagement and social interaction. Basically, the vitality of a street is driven exactly by the continued use people make of it.

In order to spread these studies, the Project for Public Spaces - PPS - was created in 1975 in the city of New York, and is still today committed to the dissemination of concepts from placemaking, a term mainly created from the theories of Whyte and Jacobs. The term placemaking refers to a way of planing, designing and managing urban spaces starting from the involvement of the community, with the main purpose of transforming these spaces into places. In the urgent need to transform the contemporary city in friendlier environments to people, placemaking searches approaches with high-impact and low cost, according to the triad 'simpler, faster, cheaper'.

As methodology, placemaking is very close to the concept of 'tactical urbanism', another recent trend in urban regeneration processes. Its approach starts from the street-level and proposes the construction of the city through small and occasional interventions promoted by the commitment and creativity of people around urban issues, which depends on the realization of agreements between the various stake holders.

According to the Theory of Space Syntax, developed by Bill Hillier and Julienne Janson in the early 1980s, the configuration of the urban space is condition and result of the social relationships allowed or not to happen there. So, the citizen is consumer and producer of the urban environment, consciously or not (HILLIER & Hanson, 1984). Currently, there is the understanding that cities should be made for but also by people, making them protagonists in making the environment they want to live in. The theoretical framework placed here leads to the conclusion that the construction of the environment must be based on the relations between the occupants and between them and outsiders.

Recent revolutions in communication and information fields lead to a reading of the urban space according to the concept of cybercity, elaborated by the philosopher Pierre Lévy, who assumed the solution of problems from the collective intelligence within an inclusive logic (Araújo, 2011). The possible social connections in the contemporary city allow the strengthening of various forms of collaboration across the urban space production process, either diagnosing problems, finding solutions and even funding necessary interventions.

In this context, urban solutions prototyping, a useful tool to tactical urbanism and placemaking, appears as a possibility of experimentation being simultaneously the intervention in the urban space, with immediate impact. Micro scale interventions depend on urban design tools. When done collaboratively, these experimentations meet the need for participatory processes, of promoting civic engagement and of creating public spaces from the perception of its users.

Method definition

The "1st Cities for People Workshop" adjusted its working methods throughout the process, learning from errors and successes. Finally such process resulted in the following steps: identification of the location, diagnosis, prototyping, experimentation and improvement, and final intervention. In the core of the proposal we have tactical urbanism and "12 criteria of good public space".

The first step is to define collaboratively the study area. Considering the real city and all its complexity, defining the intervention area is an exercise that requires a delicate negotiation between the people involved to select priorities: the type and severity of the problem; the risks and damage to which the community is exposed; the possibility of replication; the affinity between the problem and the team skills; and the visibility the project will gain, very important to raise awareness of the entire city and especially of the public management.

Once defined the location of the intervention, next step is the macro analysis. The insertion of the site into the urban fabric is observed, considering the city scale and the scale of the neighbourhood; the existing equipments in the vicinity; the relationship of the area with the flows of people and vehicles. It should also be considered the local environmental, public health and criminal data, the official plan and other official information that can help characterizing the problems to solve.

After the macro analysis, we move to the micro analysis, starting by experiencing the space. A major criticism about professionals and managers who work in the public sphere, is exactly the gap that exists between them and their subject matter. This distance makes it difficult to understand the real problems and usage needs of people who actually use the public spaces, resulting in interventions disconnected from the site, the people and the usage. With the understanding that the city should serve the people, capturing their needs and desires should precede the aesthetic and infrastructural speculation.

It is therefore crucial to 'experience' the intervention area devoid of prejudice or absolute truths as much as possible. This is a delicate point in the process, especially for architects and planners who are prepared to always have a propositional attitude toward the object of study. To have in fact a solution generated from the real demands of the space and its users, we must first get to know the problem the way it happens ordinarily.

Therefore, we must attend the space at different times and days of the week, exploring all its structures. Photographic records and observation drawings are very useful tools to capture details that routine eye can not perceive. It is also important to approach passers-by, without imposing a problem but trying to capture the reading they have from the space and if it meets their needs.

Only after meeting the demands presented by the users, we proceed to a more technical reading of the site. Therefore it is recommended to use the "12 criteria of good public space" to identify and priorize specific problems.

From this diagnosis, next step is prototyping the ideas raised as possible solutions. Urban prototyping is understood as conducting a trial, building and testing an initial object or scenario, which will be improved before its completion and that will be subsequently suitable for replication (Bunschoten, 2014). It is noteworthy that in such kind of work, the design and execution phases are mixed. The tactical urbanism proposes that fusion - and not the exclusion of one or the other - again as a way to approach the creator with the creation, but also in response to the urgency of the problems and the need to offer a final result in tune with the demands of the space and its users.

Therefore, we recommend using construction techniques and materials available in the region and take advantage of the knowledge and skills of all involved. Thus, tactical urbanism has a strong tendency to adopt low tech solutions and the use of recycled materials, cheap, local. Once the structures were built, we observe the use people make (or not) of what is being proposed. This observation is critical to improve, remove or add elements that are able to meet the demand for the object or landscape created.

Only after these adjustments we are able to proceed to the design of the final project, considering the actual adherence the original proposal had among the people it meant to benefit.

The *Passanela* case

The process of the "1st Cities for People Workshop" was accomplished collaboratively and conducted by a multidisciplinary team. 22 people were previously selected among students, activists and professionals from several Brazilian and foreign cities, from different and complementary areas, such as architecture, urban planning, civil engineering, media, education, visual arts, design and cultural production.

The *Passanela* project was developed throughout five working days. On the first day, the team went drifting near the venue of the workshop (Cerqueira Cesar region, in Sao Paulo/SP) to identify public spaces that needed intervention. The drift happened in separate groups that photographed and characterized the spaces considered interesting for the action.

On the second day, after analyzing the many identified sites, the group decided to intervene on a walkway, a complex mobility system infrastructure (Figure 2). It is an elevated walkway over an arterial route with exclusive bus lane in a junction with public hospitals, a convention center and near an access to the subway. As many of the elevated walkways in the world, this one is quite uninviting and witnesses numerous risky crossings under its structures.

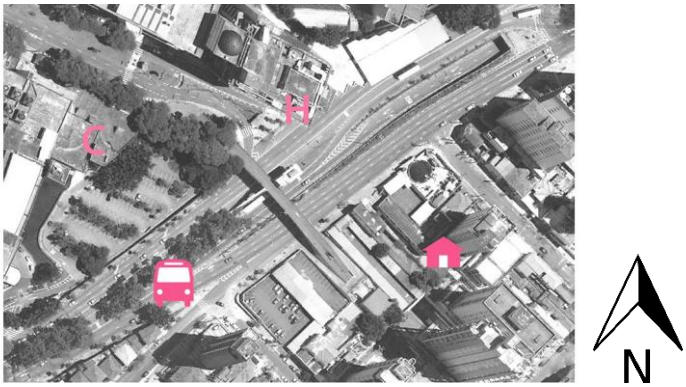


Figure 2: Location of the walkway Prof. Dr. Emílio Athié (Passarela Rebouças).
Source: *Passanela* team.

The macro analysis considered the situation of the site within the urban area, the mapping of the equipments in the surroundings and the identification of pedestrian flows. We also made a research of existing data on pedestrian accidents, traffic violations and police reports in the region, in addition to the official plan of the equipment.

For the micro analysis, the group immersed in the site taking pictures and drawing to capture details of the shapes and use of the space. It was concluded that the walkway was avoided for being smelly and dimly lighted; by offering a route that despite being safer is longer and exposed to intense sun or rain; received a large number of vulnerable people who attend the heart institute and had difficulty crossing the entire length of the walkway at once; and also the stairs were constantly avoided due being shelter of drug users and homeless overnight.

Moreover, it was observed that the walkway offered great views over the city and some important landmarks in the local urban landscape. The surrounding equipment and the bus lane ensured a continuous flow of people during day and night, also attracting street vendors and street performers.

On the third day the group returned to the site to interact with passers-by and to start the prototyping process. Easels were mounted with the questions: "What does this place needs?"; "Why don't you use the walkway?"; "Did you use the stairs or the ramp / Why?".

From recycled material taken from garbage dumpsters nearby the walkway, the group built a bench in response to the need for seats, and a kaleidoscope to enhance the site's potential for contemplation. We also performed an artistic intervention questioning about the lack of shades and signalized on the floor the presence of holes and other hazards, promoting a safer and funnier passage.

The feedback from passers-by allowed to draw several conclusions. An improvised bench made with pieces of wood was installed near the exit stairs and under the only shade on the walkway. At first it seemed to be an obvious place to install it, however the bank was avoided because of the stench coming

from the stairs used as toilet by homeless. The appeal for shadow was warmly received by passersby who interacted positively with an artistic intervention offering free shadows. The unanimity answered that they avoid the walkway because it takes more time than crossing the road. The stairs offered a shorter route than the ramp, however the bad-smelling and bad lighting worked as a barrier.

Later in the day, the group used the "12 Criteria of good public space" for a technical analysis of the quality of the site. According to the roadmap proposed by the team of Jan Gehl, they reached the following demands, described in **Table 3**.

PROTECTION	1. PROTECTION AGAINST TRAFFIC AND ACCIDENTS: Improve warning signs and identify the walkway in its surroundings; increase the height of the railing; 2. PROTECTION AGAINST CRIME AND VIOLENCE: Recover the lighting on the stairs; 3. PROTECTION AGAINST UNPLEASANT SENSORY EXPERIENCES: Increase areas covered or with shade; protect against noise;
COMFORT	4. OPPORTUNITIES TO WALK: Cover holes in the ground; replace floor by other less hot and more colorful; correct the slope of the ramp and the surface of the stairs; 5. OPPORTUNITIES TO STAY: Increase the height of the railing; 6. OPPORTUNITIES TO SIT: Make sits; 7. OPPORTUNITIES TO SEE: Create structure for landscape contemplation; 8. OPPORTUNITIES TO TALK AND LISTEN: Protect against noise; dispose seats at strategic locations, such as in the walkway entrances and in their best sights; 9. OPPORTUNITIES TO PLAY AND EXERCISE: Create interaction with the hospital users;
DELIGHT	10. HUMAN SCALE: General adjustments should respect the human scale; 11. OPPORTUNITIES TO ENJOY THE POSITIVE ASPECTS OF CLIMATE: Place furniture in natural shade and enjoying the view of the landscape; 12. POSITIVE SENSORY EXPERIENCES: Replace the material of the railing by something more comfortable.

Table 3 –Passarela Rebouças according the "12 criteria of good public space"

At night the group returned to the site to paint phrases and drawings in the surroundings inviting to use the walkway. Figure 3 shows the events.

Figure 3: Interaction with passersby and begining of ideas prototyping.
Source: *Passanela* team.

From this experience, during the fourth day the team worked the concept of an intervention, aiming at low cost, ease of assembly and immediate effect. So, on the fifth day we create benches formed by stacking pallets lined with fabric to improve contact with the human body. The kaleidoscope structure was also enhanced and the signage was reinforced with more stencils. Some potted plants were placed to cut with the aridity of the site. Wrist tapes were arranged for people to 'tie' wishes and messages on the railing, seeking interaction with the fragile attendants of Incor, the heart institute nearby. We also used wool line to improve human contact with the rail. Finally, we created a structure made of bamboo to provide shade and evoke, in a playful way, the golden backyards.

Figure 4 records the final intervention of the prototyping process. The structure built forms a module that can be replicated along the walkway. However, because of the legal fragility of such a size structure built on public space without approval of the competent entities, it was dismantled days after the action. While installed it received the acceptance of most users.

Figure 4: Result of the prototyping.
Source: *Passanela* team.

The whole production was documented and used in the process of approval by the Urban Landscape Protection Commission of the City of Sao Paulo. Nine months later the process is still under reviewof due to lack of legal instruments that can rectify. The solution found by the city hall to allow the project to be executed under the law was to consider it as a temporary installation, as if it was an event.

For the financial feasibility of the intervention, the workshop prepared the team to submit the project in a crowdfunding platform in order to pay the final intervention. Therefore, the project was available for 36 days on a web platform and got 101 supporters who financed a budget of R$5.570,00. During this period, the team enhanced the structural design and sought technical training for some of the team members about the bamboo structure. The final assembly was postponed successive times while waiting for legal approval, and was finally realized in absentia in March 2015. **Figure 5** shows the final result.

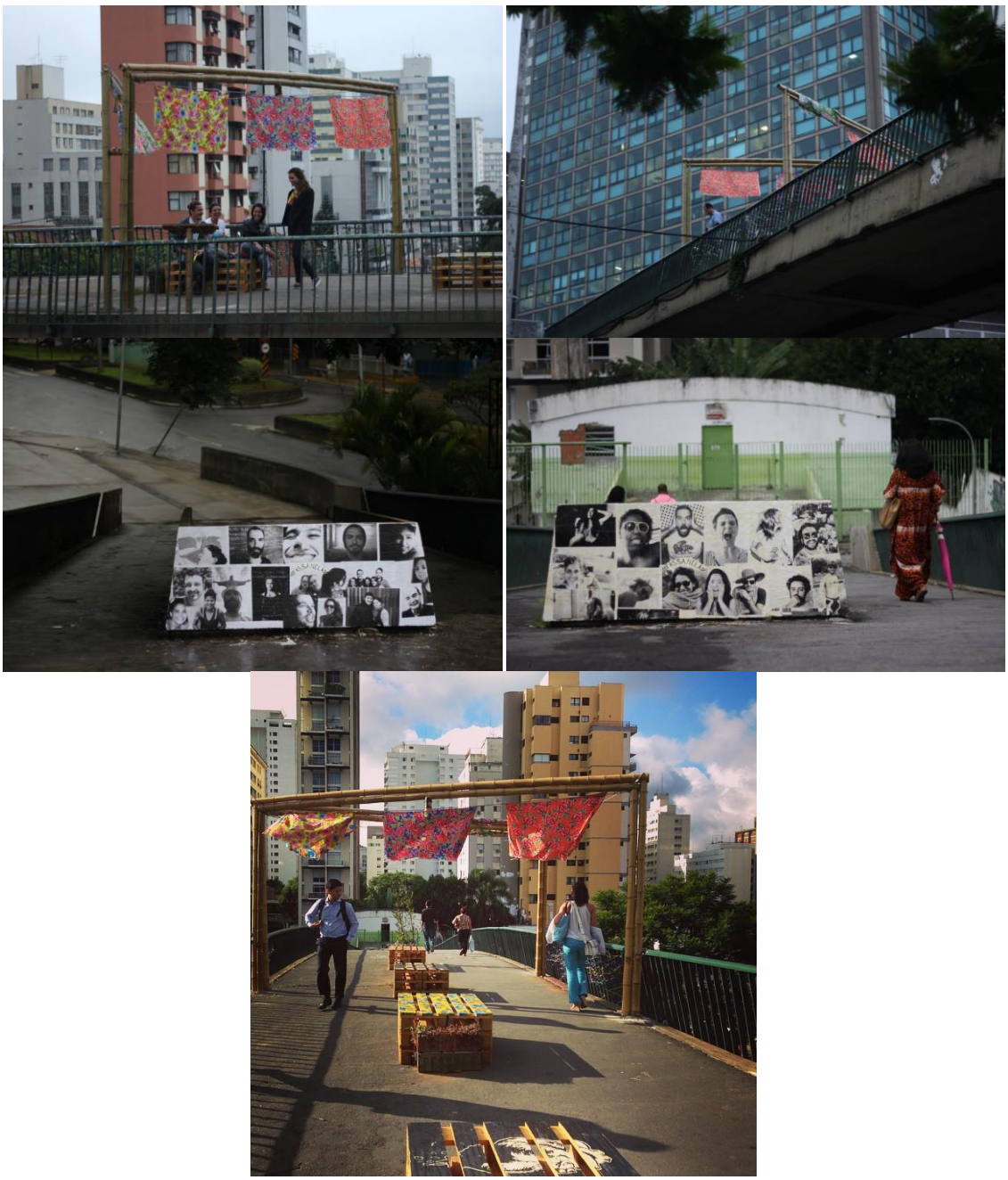


Figure 5: Final intervention
Source: *Passanela* team.

Conclusions

In a typical tactical urbanism intervention, considering the immediate material resources available, the low cost and the speed of execution, hardly a space with the complexity of the Rebouças walkway will have all their needs improved. However the analysis of the "12 criteria" can help set priorities for the intervention, once it didactly clarifies the demands to humanize the space.

For the *Passanela* project, it was possible to meet the demands for shade, seating, landscape appreciation and signaling. It was also created a device to interact with the public (desire wrist tapes), and improved the railing design with covering with woolen thread. But the ramp incline correction and

replacement of floor covering depend on a larger work, which should be assumed by the city, as well as the maintenance of local lighting.

In addition to the immediate effect, the Passanela sought the possibility of replicating the idea prototyped at this walkway. Therefore we prepared a step-by-step guide (Portuguese version available at: http://goo.gl/vybWNl), with useful tips so anyone can apply the same method anywhere. Thus, it is expected that this experience will be replicated in other walkways and inspire more prototyping interventions in public spaces around the world.

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