Collaborative mapping tools

Historically, mapping can be understood as a colonial or imposing tool that, on the one hand, simplifies reality and, on the other, illustrates one perspective – usually a hegemonic one. Nevertheless, mapping is a relevant tool for urbanists in understanding and representing spaces:

> In every cartographic practice or language, there is a discourse and a story to be told about a particular place. This discourse can be ethical, political or economic. It encourages forms of domination and hegemony in asymmetrical power relations in the production of the space we inhabit and to which we belong. Another more inclusive and critical way of thinking about cartographic languages and practices is the construction of new narratives. In these, the author of the cartography himself helps to create visibilities for those who have no voice or power to decide how they should behave or construct their own places of belonging. This makes their experiences more meaningful and identifiable within urban spaces (Vargas et al. 2019: 261).[1]

Maps have been falsely connected to a precise representation of reality, that is, as a connection between truth and knowledge. However, as Halder and Kollektiv Orangotango (2019: 12) highlight, 'truth and knowledge are deeply linked with power and hegemony'. The critical debate on cartography dates back to the 1980s and acknowledges how maps have been used as tools for colonialism and nationalism by naturalising social practices in spaces, as well as ownerships, territories, rights and social norms (Halder and Kollektiv Orangotango 2019).

The concept of counter-cartography emerged as a result of this debate, first in artistic communities and later among geographers and planners. Embedded in the post-colonial debate, counter-cartographies understand

1 Free translation from author from Portuguese to English.

mapping as a contested political practice and aim to map practices from below by shifting and challenging hegemonic perceptions and interpretations of spaces (Halder and Kollektiv Orangotango 2019).

Considering this debate, we believe that collaborative mapping tools can be understood in the context of counter-cartography. Therefore, this section is dedicated to exploring counter-hegemonic mapping tools that aim to produce a collective understanding and representation of the analysed space.

Figure 7: Seminar Integration through collaboration, Berlin, 2023. Source: Juliana Canedo

Journey

The journey – or *travessia* in Portuguese – is a tool that has been used in different contexts, especially when working with favelas and other marginalised spaces (Burguière et al. 2016). This tool was developed by the non-governmental organisation Bento Rubião when it established participatory housing projects for self-organised poor communities in Rio de Janeiro, Brazil. These

projects usually involved empty plots in which new housing projects would be built. In this context, the use of the journey tool had an exploratory aspect, as the first group activity aimed to recognise the territory through a collective walk around the area.

The journey tool can also be used in areas where target families already live. In this case, its characteristics are more related to exploring the local community's spatial knowledge and practices.

The main goal is to explore and acknowledge the problems and potentialities of specific areas, aiming to develop solutions for the space based on the practices and needs of current or future residents. These walks can be done in small groups that will explore the area either through different routes or following specific topics, such as public spaces, infrastructure and green areas. The findings should be registered through notes, pictures and maps. After these walks, the group should come together and discuss their findings, as well as how to best represent them.

When applying this dynamic in a favela in Rio de Janeiro in 2014, a group of architecture and urbanism students from the Federal University of Rio de Janeiro who were part of the Abricó[2] developed the idea of printing icons showing the most common negative issues that they were told about by the local residents, such as noise, trash and traffic. They also included positive values in the icons, such as green spaces, leisure areas and silence. Led by a small group of inhabitants, they walked through the favela and asked the inhabitants to fix the icons on the walls next to the places where they found the related negative issues or potential values. The students then transferred this information into a map and later used the map as a starting point to discuss solutions and potential value for the improvement of the favela with the participating inhabitants.

This experience shows that people are more descriptive and inclined to give precise information about the way they use and see their neighbourhoods when walking through them. Sometimes, asking the same questions over a map may confuse participants, who may then be unwilling to share information.

2 Abrico is the Model Office of Architecture and Urbanism. It is run by students and works in a self-managed and horizontal way. Its activities are carried out through participatory processes, with the aim of meeting the demands of populations that usually don't have access to formal architecture. https://emauabrico.wixsite.com/abricoufrj

Figure 8: Course Transforming built spaces in Favela Indiana, Rio de Janeiro, 2014. Source: Abricó

However, this method is limited because it requires residents to be willing to walk with the researcher group, which is not always possible. In addition, the information gathered is limited to the small group of people who took part in the walk and cannot be considered a full analysis of the neighbourhood. In either case, it can be a powerful tool for understanding a space from the perspective of its residents.

Emotional maps

Relating emotions to spaces has been the focus of researchers in various fields of study, such as sociology, psychology and geography. Emotional mapping has been used to support participative formats of planning that focus on collecting subjective data about the emotional responses of individuals in cities (Camara et al. 2021). Understanding the different emotions that spaces evoke in people can be a helpful tool in understanding power imbalances, gender issues and the different forms of engaging with space depending on your social group.

This method can vary with the use of digital tools, such as certain apps, and analogue processes of mapping emotions. The method usually comprises a representation of space, using maps, models, pictures and icons to represent emotions. Participants are then asked to associate emotions with specific areas.

As in most of the previously described activities, it is important for the planner, designer, researcher or other facilitator to understand the reasons why certain emotions are attached to certain spaces. In this sense, the icons and emotions are a tool for establishing other types of spatial dialogue. Hence, the conversations that emerge from this interaction are as important as relating a space to a certain feeling. For example, a location can be related to fear if you are talking to women or to peacefulness when talking to men. The relevant data are not whether the space is objectively safe or unsafe, but rather why do women feel unsafe where men feel safe, and what solutions can address both emotions?

Asking symbolic and open questions, such as those about one's general feelings, often makes participants more open to expressing their wishes and impressions about certain places.

In a 2021 project conducted by students in Märkisches Viertel, a neighbourhood in Berlin, we used a map of the area and pictures of some of the most well-known places, such as the park, the river, a shopping mall and the S-Bahn station. We also added pictures of less-specific areas, such as a social housing complex and some side streets. As a large percentage of residents living in this neighbourhood have a migrant background, the students also added instructions in the three most-spoken languages besides German: Arabic, Farsi and Turkish. The students brought stickers with icons representing different feelings, such as joy, fear, loneliness, acceptance, exclusion and peace. In addition, they carried white stickers and Post-it notes for people to add their experiences of any feelings that were not listed.

The particularly interesting aspect of this dynamic tool was that instead of using a dynamic map in fixed spaces, the students used a cargo bike from BENN[3] Märkisches Viertel, one of our cooperative neighbourhood partners,

3 BENN: Berlin Develops New Neighborhood is a program from the Senate for Urban Development, Building and Housing. The aim of the programme is to strengthen social cohesion and promote integration in the neighbourhood. https://www.berlin.de/sen/stadtentwicklung/quartiersentwicklung/programme/berlin-entwickelt-neue-nachbarschaften-benn/

and rode around the neighbourhood to ask people in different locations about their feelings. Here, the map became more than a graphic tool as people began talking with the students about their current location. The students selected five different spots and stayed for around half an hour at each location. During this time, they spoke with different residents, from children to older adults.

Another strategy the group developed was to offer snacks and coffee as a way to invite people to engage in the activity. The stickers and snacks were not only a major attraction for children and teenagers but also for their parents and other passersby. The way the students decorated their BENN cargo bike also attracted the attention of many people who took part in the activity.

While using the tool to connect feelings to places with the map or pictures, the students asked questions and took notes. The students used another tool that we called the Wishes Box, which consisted of an open box and the question, 'What do you wish for your neighbourhood?' written in four different languages: German, Arabic, Farsi and Turkish. The participants were invited to write their wishes on colourful cards that they would then anonymously place into the box. These wishes could be written in any language and were later translated.

In general, the combination of these different methods and strategies was very successful, and the students collected a large amount of information about the positive and negative aspects of the area, as well as the participants' wishes, which could later be translated into design proposals for the neighbourhood.

Some challenges of this activity were related to the fact that the dynamic tool was used by passersby and not by a fixed group; therefore, it was not possible to discuss later impressions with the involved participants. It was also difficult to engage these passersby in deeper conversations. However, by approaching individuals on the street, the students could reach people who might not have participated if the activity were fixed at one specific location.

Figure 9: Workshop with refugees in Märkisches Viertel Berlin, 2022. Source: Juliana Canedo

Open-source digital maps

Digital tools can be useful for engaging larger groups in participatory design processes, especially under-represented groups such as youth. The use of interactive digital mapping tools has the potential to amplify under-represented voices and convey local knowledge from a bottom-up perspective.

In 2009, the 'Wikimapa' project was developed in Rio de Janeiro by the non-governmental organisation Rede Jovem – Solidaritas as a pilot project that aimed to develop an open-source collaborative mapping tool for favelas. The idea was not only that the favela was mapped – since favelas are often not fully mapped in official documents – but also that this mapping was done by its residents, bringing counter-hegemonic narratives of their spaces. The project arose from this community mobilisation and was developed in cooperation with the residents, especially the youth, called 'wikireporters'. They mapped material places in the favela, as well as its stories, important people and memories, which revealed the subjectivity of the mapped area. The map was then

posted on a blog where the backstage stories of the favela's people and spaces were narrated (Vargas et al. 2019).

As we can see in this example, the use of collaborative digital tools for mapping can expand the production of spatial representation and understanding, in addition to revealing diverse narratives that might challenge hegemonic narratives that are often over-represented in traditional cartographies. It also opens up the opportunity to share experiences and spatial knowledge by bringing different qualities to the mapped space that go beyond just the location.

In 2024, a group of students working with a youth group of refugees living in Berlin decided to test the development of an interactive digital mapping tool aimed at co-producing shared collaborative filtering of accessible local knowledge among young refugees. Using the app UMAP, the idea was to add local resources and the participants' favourite locations.

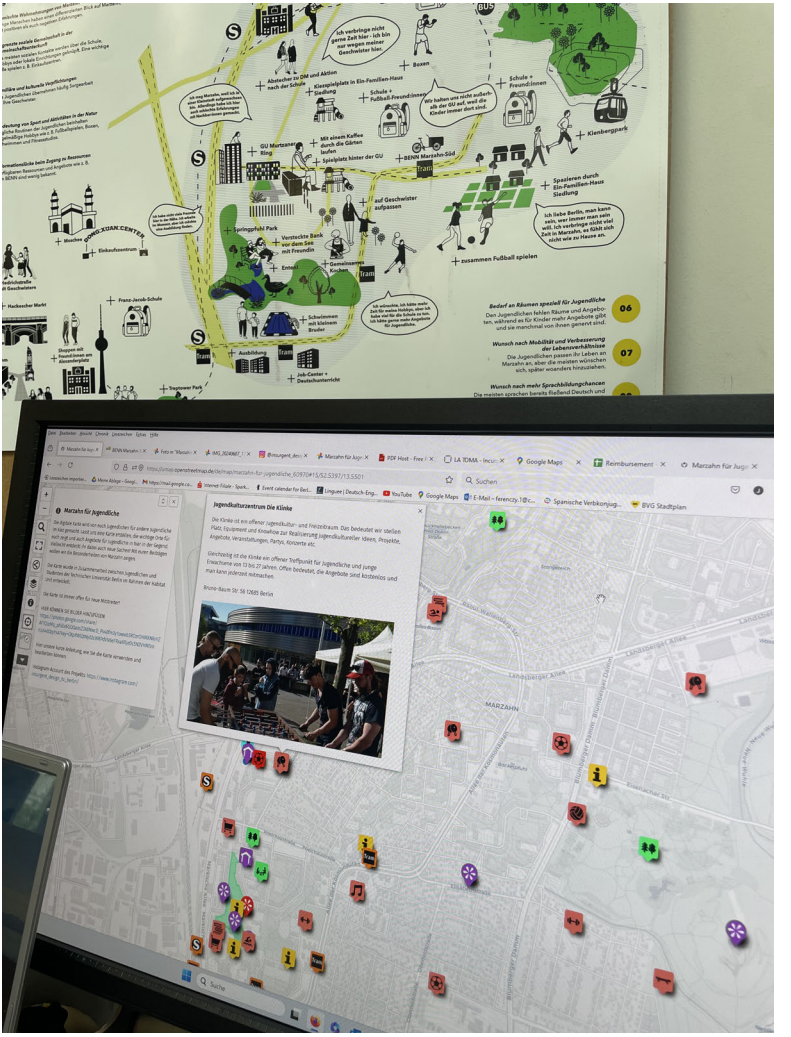
Over several weeks, the students walked around the neighbourhood, making mental maps, interviewing the young refugees and marking their favourite places and activities:

> The Mental Maps visualized personal spatial perceptions, reflecting individual views and fostering self-reflection on important landmarks, mobility, and favorite spots. The informal approach of the Walk-Along Interviews explored real-time experiences, building trust and gaining insights as participants showed us their favorite spaces, documented routes, and took pictures. These methods helped us understand how participants interact with and perceive their environment. [4]

The students later created a base map, including some initial information related to what the refugees reported as relevant places, as well as spaces that they thought could be important, such as youth centres and sport facilities. The creation of this map aimed to showcase a representation of space that was relevant to the refugees' needs and interests.

4 Extract from the Ebook of the Studio Insurgent Design: unlearning practices through marginalized spaces (Juliana Canedo, Tuanne Monteiro, Qusay Amer, Maureen Abi-Ghanem and Francesca Ceola), TU Berlin 2024. Students: Alexandra Nunez, Inci Sağırbaş, Yuri Ferenczy, Oline Kuhlmann, Ahmed Kattaya.

Figure 10: Studio Insurgent Design, Berlin, 2024. Source: Juliana Canedo



The students launched the tool during a community event and showed the young refugees how to explore, edit and add photos to the map. They presented their fieldwork findings, such as the individual mental maps and the collective map. They also facilitated real-time interactions with the digital map on a monitor and promoted the use and editing of the map, even beyond the conclusion of their project. The students also provided the young refugees with a brochure to encourage them to edit the maps at home or at any time.

Mapping through participatory photography

> Photos capture a brief moment and thus provide insights into the photographer's life perspective, unbound by any particular language and can be understood by everyone. [5]

Photography has long been a central tool for architects and urban designers. It has also been intensively used in social research to represent and archive spaces and practices. Historically, however, this tool has been used by researchers or designers who decide what the photos should represent and who also usually interpret the results. Recently, the practice of asking communities to take pictures of their own realities has become increasingly prevalent in different contexts. This method is called participatory photography and aims to bring the perspectives and lived experiences of the community to the centre of the debate about spatial understanding.

The use of photography as a collaborative tool encourages participants to explore their surroundings through the lens and representation of spaces. By offering the opportunity to bring individual perspectives into collective discussions, participatory photography can foster debates about how the city and neighbourhoods are diversely perceived and experienced. The act of taking a photo can also increase the sense of belonging by fostering interaction between the participants and the spaces they occupy (Gerodimos 2018).

In a course that I co-taught at TU Berlin, one group of students working with young refugees living in the neighbourhood of Marzahn in Berlin decided

5 Extract from the Ebook of the Studio Insurgent Design: unlearning practices through marginalized spaces (Juliana Canedo, Tuanne Monteiro, Qusay Amer, Maureen Abi-Ghanem and Francesca Ceola), TU Berlin 2024. Students: Omar Saleh Zenbaey, Emanuelle Dubot, Luis Michael Baumann, Elise Schreck, Jakob Honz.

to use photography as a tool to understand the refugees' spatial perspectives. This idea came after an initial approximation event, where the students got to know a group of refugees who shared their interest in photography, as one of them was a professional photographer.

Over the course of two months, the students engaged in different photography-based activities with the refugee group. They visited exhibitions, went to a park to take pictures and participated in a workshop conducted by the professional photographer on how to use a camera. Throughout the process, the students and refugees engaged in many conversations and collective activities, found common interests and shared their experiences:

> During the semester, we organized various activities with our group, and our weekly meetings were always centered around photography and capturing moments. … Together, we learned about photography and, of course, had a lot of fun.

During the final weeks of the activity, the students gave disposable cameras to the refugee participants to capture photographs based on the theme 'my daily life in Berlin'. The idea was to offer space for each individual to express their own narrative through photography. Afterwards, they printed their photos and met to have conversations about where the pictures were taken and what they represented. They took the opportunity to discuss the barriers they faced in their daily lives, the places they like in the city and their aspirations for the future:

> The results of the disposable cameras week gave us unusual insights through the captured moments within the refugees' lives in Berlin. It would be hard to say that the moments pictured were different from the lives we live day to day; in fact, they were unexpectedly similar to our own. Nonetheless, what actually caught our hearts and souls was how similar life can be and how different the resulting interpretations are. Even among the participants, there were differences in opinions about which moments to expose and discuss with others.

From these conversations, the students recorded quotes from the refugees, which they later printed and presented with the pictures in an exhibition we held in a neighbourhood event in the shelter where the refugee group lived. In their words,

> [p]hotography is a powerful medium of self-expression and communication, and an exhibition is a clear way to share it. … We wanted them to be proud of their work and enjoyed seeing the outcome of the entire semester. In a collaborative process, the result was not predefined; we focused on building trust. Therefore, the outcomes, shaped and defined by the process, genuinely express it.

The students translated these outcomes into a map, which was also exhibited. The students' long and fluid process of interaction with the refugee group allowed them to obtain deeper meanings and enter discussions about spatial representations, use and understandings. Using a visual medium such as photography made it possible for these students to go beyond rational discourse.

Figure 11: Studio Insurgent Design, Berlin, 2024. Source: Juliana Canedo