

CARTOGRAPHY AS A METHOD FOR REGENERATIVE AND RELATIONAL DESIGN

CARTOGRAFIA COMO MÉTODO PARA O DESIGN REGENERATIVO E RELACIONAL

CARTOGRAFÍA COMO MÉTODO PARA EL DISEÑO REGENERATIVO Y RELACIONAL

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ABSTRACT

We find especially relevant to the development of alternative forms of conducting research those types which seek to overcome the subject-object dichotomy typical of traditional ways of scientific and design work, as well as those which allow us to consider the plurality of ecosystemic relationships involved in a territory to be investigated. This article presents cartography with its theoretical and design references through a review of various publications, scientific works, project reports, and websites. Also, certain conceptions of cartography are summarized to make an ethical and methodological proposition for a regenerative design oriented towards a relational and ecological worldview.

KEYWORDS

Cartography; design processes; regenerative design.

RESUMO

Entendemos como muito relevante o desenvolvimento de outras formas de fazer pesquisa, que busquem a superação da dicotomia sujeito-objeto, tão marcada no tradicional fazer científico e projetual, e que permitam considerar a pluralidade de relações ecossistêmicas implicadas no território a ser pesquisado. Este artigo tem como objetivo apresentar a cartografia e suas referências teóricas e projetuais a partir da revisão de diferentes documentos: publicações científicas, obras de divulgação, relatórios projetuais e sites. Além disso, resumam-se algumas compreensões sobre a cartografia, a fim de propô-la como ética projetual e proposição metodológica para um design regenerativo orientado a uma visão de mundo relacional e ecológica.

PALAVRAS-CHAVE

Cartografia; processos projetuais; design regenerativo.

RESUMEN

Entendemos como muy relevante el desarrollo de otras formas de hacer investigación, que busquen superar la dicotomía sujeto-objeto, tan marcada en el hacer científico y proyectual tradicional, y que permitan considerar la pluralidad de relaciones ecossistémicas implicadas en el territorio a ser investigado. Este artículo tiene como objetivo presentar la cartografía y sus referencias teóricas y proyectuales a partir de la revisión de diferentes documentos: publicaciones científicas, obras de divulgación, informes proyectuales y sitios web. Además, se resumen algunas comprensiones sobre la cartografía, con el fin de proponerla como ética proyectual y proposición metodológica para un diseño regenerativo orientado a una visión del mundo relacional y ecológica.

PALABRAS CLAVE

Cartografía; procesos proyectuales; diseño regenerativo.



1. CARTOGRAPHY

Cartography is a powerful way of considering and intervening in territories that maps existing forces and, in so doing, co-produces new relationships and new agency. It is of utmost importance for a design that proposes to be regenerative (Garcia; Freire; Franzato; 2023) to consider a territory in its entirety, that is, in its plurality of actors and ecosystemic relationships. Such actors are not only human, but also all things biotic and abiotic, and all forms, both material and immaterial, in the relationships that make up reality, or rather, existence.

Cartography was initially proposed by the philosophers Deleuze and Guattari in their book "A Thousand Plateaus" (Deleuze, Guattari, 1995). Here they describe a research ethic that confronts the traditional forms of science and academia which are often inadequate for dealing with the complexity of our world. In traditional science, the researcher adopts a supposed neutrality when collecting data. Implicit in this is an imagined division between the one who researches and the one who is researched (subject and object). However, this division is impossible because, in fact, we are completely embedded in the subject of our research. Furthermore, our critical viewpoint is created from our personal repertoire and perspectives on what is being researched, and even more beyond this.

To address these limitations, Deleuze and Guattari proposed a way of doing things that did not represent reality as static, but instead mapped processes as they happened and located them in mapped space by perceiving the lines of force that run through it (Deleuze; 1996). These forces could be social, environmental, and subjective dynamics, and this subjectivity either individual or collective (Nadaud, 2015; Guattari, 1992). Though the term cartography was borrowed from the field of geography and broadly used to refer to map-making, the act itself regards more than arranging geographic data: it is the living process of mapping any type of reality that cartographers encounter.

Academics and researchers have embraced this proposal of Guattari and Deleuze and created qualitative research methods and practices. Brazilian researchers have even launched movements on this example, including Suely Rolnik, Virginia Kastrup, Eduardo Passos, and Luciano da Costa (Rolnik, 2016; Passos; Kastrup; Escóssia, 2009; Passos; Kastrup; Tedesco, 2014; Costa, 2014, 2020; Costa; Amorim, 2019).

In this article, we summarize conceptions of cartography as they are applied in the fields of research and design, and illustrate traces of these using projects that perceive and act in this new way while maintaining a relationship with the design field.

2. CONCEPTIONS OF CARTOGRAPHY

Research that adopts cartographic ethics is not limited to the collection of pre-determined types of data using pre-determined procedures. It is a process of investigating and co-producing material which seeks emergence. Cartography, in fact, emerges from an inventive attitude because as it maps it also acts and alters. Through cartography, one observes, shows, reflects, criticizes and acts. Cartography serves as a principle, "entirely focused on experimentation anchored in reality," (Deleuze; Guattari, 1995, p. 21).

The map is open and connectable in all of its dimensions; it is detachable, reversible, susceptible to constant modification. It can be torn, reversed, adapted to any kind of mounting, reworked by an individual, group, or social formation. It can be drawn on a wall, conceived of as a work of art, constructed as political action or as a meditation (Deleuze; Guattari, 1995, p. 21).

Unlike traditional research, in cartography we do not start from hard hypotheses but instead allow existential territories to reveal themselves, which can and should change the course of our investigation (Kastrup; Passos; Escóssia, 2009).

Methodology, when imposed as a principle, is defined by previously established rules. Hence the traditional meaning of methodology embedded in the word's etymology: meta-hódos. With this direction, the search is defined as a path (hódo) predetermined by the goals given at the outset. In turn, cartography proposes a methodological reversal: transforming the meta-hódos into hódos-meta. This reversal takes a chance on a thought experiment, which is a method not to be applied but to be experienced and assumed as an attitude. This does not surrender any rigor, but instead gives new meaning. The rigor of the path, its precision, is closer to the movements of life or the normativity of living which Canguilhem

speaks of. Precision is not taken as accuracy, but as commitment and interest, as an implication in reality, as an intervention (Kastrup; Passos; Escóssia, 2009, p. 11).

According to Costa (2020), cartography is more than a possible research method, and can be understood as an ethical-political inspiration which seeks to complement and strengthen qualitative research. "This is an ethical position because it calls into question the subject who operates an intervention, as he also assumes himself to be an institution to be analyzed," (Costa, 2020, p. 14).

Through cartography, we can follow processes through the analysis of their lines. Such lines are articulations, which are combined with each other, and the great challenge is to disentangle them, what Deleuze (1996) calls mapping:

We have as many tangled lines as a hand. We are complicated in a different way from a hand. What we call by different names—schizoanalysis, micro-politics, pragmatics, diagrammatism, rhizomatic, cartography—has no other object than the study of these lines, in groups or as individuals (Deleuze; Parnet, 1998, p. 148)

We settle on these lines, traveling through unknown territories, drawing maps. Costa and Amorim (2019), based on Deleuze-Guattarian proposals and concepts, present a theory of three lines which are in all living processes: hard lines, flexible lines and lines of flight.

Hard lines are segmentary, are territorial limits, binaries, protocols. "Hard lines demarcate identities, duties, habits, conventions, crystallized opinions, in short, they represent the safest and most violent modes of existence" (Costa; Amorim, 2019, p. 918).

Flexible lines and lines of flight are deviations and emanations which arise in a molecular way and do not demarcate territories, but instead can lead to transition between territories and devices, or even to their deconstruction or transformation.

Flexible lines are often in the order of the unconscious, the unspoken; lines of flight represent a decisive rupture, a search for transformation, escaping prior categorizations and judgments. For Deleuze (1996), lines of flight are subjectivation, configuring themselves as possible inventive paths of resistance and becoming. In short, Guattari and Deleuze ask us to look more at processes and relationships than at structures.

3. PROJECT REFERENCES RELEVANT FOR DESIGN

A few relevant projects are described below to assist in understanding cartography from a regenerative design perspective. This perspective regards ecosystemic relationships and it values the metamodel and the production of subjectivities. In each case, the details of which can be found with the associated links, we mention a trace that brings us closer to understanding cartography as a design proposal.

In *New Social Cartography of the Amazon* (Nova Cartografia Social da Amazônia) (Almeida, 2013) (<http://novacartografiasocial.com.br/>), we can find immense agency and collective power. Projects are carried out that involve mapping and preparing reports in collaboration with local communities, which, in turn, can self-map discourses, cultures, places, and conflicts, providing evidence for their singular and existential conditions and expressions (Figure 1).



Figure 1: Report on Children and Adolescents on the Riverside and in Quilombolas (fugitive slave communities) of Adaetetuba.

Source: <http://novacartografiasocial.com.br/>

This work of social cartography was developed within the scope of the Agreement signed between UNICEF and PNCSA (the New Amazon Social Cartography Project) and realized through IAGUA (Amazonia Institute of Urban and Environmental Management). According to Lima and Costa (2012):

The product of social cartography is a report, material that brings together the written and illustrative content of the protagonists of social cartography. The information is generated in collectively organized meetings and, through audiovisual communication resources, the records of the descriptions of the subjects' daily experiences are transcribed into print. This is then reviewed by the social mapping participants themselves who authorize the use of the text, images and their personal data. The group then

decides on the appropriate text formatting, color and composition of their images. Each report consists of text, images and a situational map. (Lima, Costa, 2012, p. 81)

The cartography method used with children and adolescents of the Amazonian quilombolas and riverside communities, according to Da Costa Lima and Da Costa (2012), involved several steps to guarantee an accurate and meaningful representation of the territory. Initially, social cartography workshops were held where participants learned basic cartography concepts and discussed the importance of sociocultural elements present in their territories. These workshops emphasized that the young people themselves create sketches which allowed them to draw preliminary maps of their communities. After these sketches, the next step was to georeference the sociocultural elements.

With the help of GPS, the young people, accompanied by researchers, marked the geographic coordinates of the points of interest identified in their drawings. This data was fed into digital mapping programs including Trackmaker and ArcGIS to create an accurate digital cartographic foundation. Next, the sketches were adapted graphically, by digitizing and vectorizing them to improve their visual quality and ensure that the original traces were preserved. This process also included the insertion of symbols and captions that represented significant aspects of the daily lives of children and adolescents, such as leisure places, environmental problems and work activities. Finally, a situational map was created integrating all the collected and adapted information. This map, together with the participants' transcribed experiences, served not only as a document of political demand, but also as an educational resource that reinforces the cultural identity and collective memory of the communities involved (Da Costa Lima; Da Costa; 2012).

In Cartography of the Participatory Budget of Belo Horizonte (Cartografia do Orçamento Participativo de Belo Horizonte) (<https://opbh.cartografia.org/>) applies a method called undisciplined cartography (Lopes; Rena; Sá, 2023; Rena; Souza; Sá, 2022a).

Its principal actions and analyses are based in four dimensions. I) Spatial/Territorial: a) through the creation of collaborative digital maps that bring together georeferencing tools to enable acting in a network and in real time using software including Crowdmap, Google Maps and Vista Maps; b) producing collective cartography based on face-to-face meetings

such as workshops; II) Temporal: through the production of timelines that analyze the chronology of the investigated phenomena and their relationship with parallel events/ occurrences in urban, national, and global dynamics; III) Conceptual and Informational: using Wiki pages to enable collaborative, procedural and networked knowledge production we organize the theoretical precepts that guide our research and also use this as a means of producing/storing databases ; IV) Communicational or Network Formation: with the tactical use of social networks and communication channels widely used online such as fan pages and social network events, blogs, etc. (RENA, et al., 2016, p. 3)

Following the determination of these axes, visualizations of the mapped processes involving graphic and textual information as well as hyperlinks to other media and content were identified as Cartographic Narratives, articulating information such as maps, timelines and network graphs with the aim of illustrating not only the, "struggle movements, but also struggles in motion, that is: the developments of the disputes at stake, their advances and impasses, their weaknesses and contradictions" (LOPES, et al. 2019. cit., s.p.).

The construction of such narratives is based on four questions drawn from the study of the cartography of controversies (LATOURE, 2012): what? (event), why? (narratives or representations), who? (human actors) and what? (non-human actors).

Answers to these questions form the nodes of the networks under construction and through which the formation of groups (how?) and connections (what are the power relationships?) are mapped. By organizing the information along a timeline (when?), it becomes possible to map some of its most evident developments and controversies (LOPES, et al. 2019. cit., s.p.). (Rena et. al, 2022b, p. 125).

In this context, a territorial game was created as a cartographic device for interacting with the community (Rena et. al, 2022b). The game consists of modeled villages, cards and a timeline identifying public works, actors, narratives and other events regarding participatory budgets (Figure 2).



Figure 2: Images of the Cartographic Participatory Budget Game in the state of Belo Horizonte.

Source: <https://opbh.cartografia.org/>

Development of the Cartographic Participatory Budget Game involved identifying critical information about the budget with the help of community leaders, delegates from COMFORÇA (the Monitoring and Supervision Implementation Commission) and local residents. A survey was conducted through classroom debates and research meetings to define the essential materials for designing the game, such as modeled villages, cards with information about public works and events, a timeline, bells and a timer.

The game materials were carefully chosen to facilitate participant interaction and understanding of the territories. The modeled villages helped them visualize event locations, while letters identified public works and actors. The timeline was used to record the main participatory budget events, and the bells allowed teams to express themselves quickly, fostering an active and competitive dynamic.

The game divided participants into teams and a mediator who presented cards with questions. Teams earned points by ringing the bell and reporting narratives about the content of the cards that provided information about the modeled village. A member of the research team was responsible for recording on a timeline the events and narratives mentioned, ensuring that all details were captured during the game.

The objective of the game was to map information and collect reports from the population about the impact of participatory budget public works in a playful and relaxed way, and also to allow participants and researchers to get closer. This method allowed the emergence of common information and knowledge that would otherwise not be revealed using traditional approaches. This promoted a deeper understanding of the dynamics of citizen participation and the impacts of public works in these territories.

There are other examples of cartographies that rely on a more active inclusion of the subjectivities of citizens and participants in study cycles and immersive experiences, as in the following cases. Here, "composting" of images and illustrations is done, often with art direction and specialized editorial monitoring, and always guided by a clear theoretical and political proposal.

The publisher Subjective Atlas (<https://www.subjectiveeditions.org/>) organizes cartographic works on cities, territories, and countries. Their atlases are books composed of local subjectivities set within a global network. By mapping with collective intersubjectivity in a bottom-up approach that is rooted in real experiences, knowledge is generated from a specific place and the people who inhabit it.



Figure 3: Above, image of people leafing through various publications; Below, pages 20 and 21 of the eBook Subjective Atlas of Palestine.

Source: <https://www.subjectiveeditions.org>



Figure 4: Cover image and page 12 of the book Forest2 (Floresta2).
Source: <https://www.academia.edu/>



Also regarding arts and the political is Wild – Cycle of Studies on Life (Selvagem - Ciclo de Estudos sobre a Vida) in which cartography and audiovisual materials generate paths from collaboration, studies, and the exchange of knowledge that involve, first and foremost, ecological and indigenous thinking.

Audiovisual composting is conducted in Wild Arrows (Flechas Selvagem) (<https://selvagemciclo.com.br/flecha/>), directed by Anna Dantes and narrated by Ailton Krenak. Such works inform, create meaning, and vindicate a cultural and existential territory.



Figure 5: Regenerating Path and Sun Path.
Source: <https://selvagemciclo.com.br/>



Figure 6: Arrow 6 - Time and Love (Flecha 6 - 0 tempo e o amor).
Source: <https://www.youtube.com/>

Cartography as a research process is explored in Cristina Ribas's visual essay (2017) which integrates its methods with militant and artistic research practices. The approach is based on Félix Guattari's schizoanalytic cartography which combines the transversalization of knowledge with collective subjectivation, allowing for the creation of models that influence both subjectivity and reality. This practice not only maps realities and relationships, but also acts as a tool for analyzing and transforming signs and forces in the contexts being studied.

Counter-mapping Queen Mary (Figure 7) is a good example of this approach. This was conducted in partnership with The Counter Cartographies Collective as a local intervention and collaborative research project at Queen Mary University of London. It produced maps and games that reveal hidden and unsystematized data from the global knowledge economy, highlighting

exploitation, gender inequalities, and fee disparities. Cartography, in this context, is not just a visualization tool, but a means of exposing and addressing complex structural issues.



Figure 7: Counter-mapping Queen Mary, finding your way across borders and through filters, 2010.

Source: Ribas, 2017.

In sum, the method used in these works highlights the ability of cartography to generate cognitive, political and subjective effects through research. Schizoanalytic cartography allows researchers and participants to critically locate themselves in their contexts, mapping blockages and possibilities for reinvention. This process demonstrates cartography to be a dynamic and transformative resource that is instrumental for activism, education, and the collective production of knowledge.

4. FINAL CONSIDERATIONS: CARTOGRAPHIC INPUTS FOR REGENERATIVE DESIGN

In 1989, Guattari proposed Ecosophy as an ethical-aesthetic-political concept composed of three ecological registers: subjectivities, social relationships and the environment (Guattari, 2001). Even though he seems to allude to the environment in a generic way, the philosopher calls on us to organize ecosophical objects (Nadaud, 2015), that is, a confluence of the three ecological registers. In Guattari's view, we need to organize the production of subjectivities and subjective formations in an intentional and molecular way in order to create the conditions for escaping our socio-environmental crises. These crises arose from a homogenizing subjective impoverishment, which is, "general movement of implosion and regressive infantilization" (Guattari, 2009, p. 8).

By drawing upon Guattari in her master's degree research, the author developed an understanding of

regenerative design focused on fostering the elaboration of human subjectivities with an ecological worldview in which the various ecosystemic relationships are understood and respected (that is, among human and non-human as well as living and non-living actors) (Garcia, 2021).

In conducting the associated fieldwork in the form of a cartography project, participants were invited to conduct design actions that could give rise to regenerative processes. Collaborating researchers sought a cartographic process and an intervention in which the subjects were involved in the territory, proposed transformations, and transformed themselves while mapping, prospecting, and catalyzing (Garcia; Freire; Franzato, 2023). A principal effort of regenerative design is seeking alternatives to markedly modern and anthropocentric thinking, and this fieldwork therefore experimented with cartography.

Held in a nature preserve in the Cantareira mountains in the state of São Paulo, Immersion Regeneration (Immersão Regeneração) lasted 4 days and involved 10 participants. A kit containing inputs and guidance related to cartographic ethics was distributed, and we proposed that participants write about themselves and their values, their points of view and expectations. We created an environment for horizontal and respectful dialogue to establish and strengthen bonds. We then proposed mapping the territory by involving ourselves in it. In an attitude of felt thinking, we walked throughout the location to experience it, heard its stories and learned about its relationships by interaction with the people inhabiting it.

Upon return from our excursion, the group silently mapped the territories we were witnessing emerge by way of their lines, traces of the environment, social relationships, and subjectivities (Figure 5).

This was followed by workshops employing conversation circles to articulate the principles of a regenerative practice which recognized interexistence and to establish dialogues that could identify skills for strengthening the aggregation of relationships of value to the ecosystems. We also co-created video manifestos (https://youtu.be/bhGTd0A6o_4 and <https://youtu.be/mYmjX2QZoEE>) that propose a vision of regeneration and its ethos, as well as an ecoperformance that maps the territory's narratives and conflicts in order to raise awareness among the group.



Figure 5: Images from Immersion Regeneration (Imersão Regeneração), an activity in which we carried out experiments with cartography.
Source: Garcia, 2021.

By understanding cartography as a design ethic for ecosystem mapping, not only are social relationships brought to the fore, but even more so the multiple relationships between biotic and abiotic actors that make up a place. We did not analyze systems in a technical manner as static objects separated from ourselves, but instead delved into and mapped interexistence to raise awareness, to make people see, to critique, and to foster agency. The products of this work are not just the typical visual artifacts of an artistic or design process, but are rather effects on relationships and ways of seeing, of thinking and of gaining agency.

Here we conclude that cartography, especially when applied in a schizoanalytic and regenerative way, has a unique ability to map and transform socio-political and cultural realities. The practice of cartography goes beyond the simple representation of spatial data and instead encompasses a process of critical and participatory engagement with contexts that are being studied. This approach is instrumental in exposing and addressing complex structural issues, which allows researchers and participants to critically position themselves in their contexts and to envision new possibilities for reinvention.

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