

PARTICIPATORY MAPPING IN LATIN AMERICA: A TOOL FOR ADULT EDUCATION FOR SOCIAL CHANGE

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ABSTRACT As with many other sciences, the field of cartography has developed based on the exclusion of other forms of knowledge of the people from the South. The purpose of this article is to discuss Participatory Mapping (Social cartography) both as a possibility for adult education for social change and for giving voice to social groups, who were historically denied the right to speech, the possibility of sharing their knowledge about space. Based on recent examples, especially in Latin America, it argues that during the mapping activity there is a process of learning exchange between the scholar's knowledge and the local communities' knowledge of the mapped spaces where they live.

RESUMO: Assim como diversas outras ciências, o campo da Cartografia se desenvolveu com base na exclusão de outros saberes dos povos do Sul. O presente artigo tem como objetivo discutir a Cartografia Social tanto como possibilidade de educação de adultos para mudança social quanto para dar voz a grupos sociais que foram historicamente recusados o direito de falar a possibilidade de compartilhar seus conhecimentos sobre o espaço. Com base em exemplos recentes, sobretudo na América Latina, argumenta-se que durante o mapeamento ocorre um processo de troca de saberes entre o conhecimento acadêmico e o conhecimento das comunidades locais que tem seus espaços mapeados.

Keywords: Participatory Mapping, Social Cartography, Adult Education

Introduction

Two men holding pens are looking over a map on a table. The first one wears a polo shirt and jeans, the second one wears an indigenous outfit: a t-shirt, a handcrafted necklace, a bracelet,

and a vibrantly coloured feather headdress. The photography that portrays this event is in the first volume of the New Cartography Notebook, named 'Resistance and mobilisation of indigenous people from Lower Tapajós'¹. Like many projects of participatory mapping, this is an opportunity of co-work between traditional groups (*comunidades tradicionais*) such as indigenous groups or quilombolas, and cartographers, where many times the roles of teaching and learning are not fixed. While the latter group learn about the indigenous territory and cultural practices, including another perspective on their own mapping techniques, the former learns new cartographic techniques that would allow them to negotiate with the state on an equal footing basis.

The aim of this article is to argue that the participatory mapping or counter-mapping technique (*cartografia social* in Spanish and Portuguese) has been used as a powerful tool of adult education for social change, especially in Latin America. Therefore, I start in section 1 by discussing the development of cartography through the lens of an analysis of colonialism and maritime expansion. I consider the role of official mapping in silencing voices of specific groups to subjugate the people and dominate the land more easily. In section 2, I move to present principles of participatory mapping and its relation to adult education through the discussion of examples, mostly in Latin America, a region where indigenous groups and other traditional communities have been participating in the processes of mapping to have their right to land secured. In section 3, I acknowledge some limitations of the participatory mapping technique, but I re-assert the claim, in conclusion, that the process of this approach to mapping can be a tool for enlargement of the participation of marginalised groups, such as ethnic minority groups and women.

1. Cartography as tool of knowledge and power

A wide enough definition for a map is a graphic object created with the goal of communicating information about a place of any size, from a small farm to the entire planet. According to one of the most traditional textbooks in cartography, “a

¹ Projeto Mapeamento Social (2014). Resistência e mobilização dos povos indígenas do baixo tapajós. *Caderno Nova Cartografia*, 1. Available in: <http://novacartografiasocial.com.br/cadernos/projeto-mapeamento-social>. Access in 12th May 2018.

map is, in its primary conception, a conventionalized picture of the earth's pattern as seen from above, to which lettering is added for identification" (Raisz, 1948, xi). According to Raisz, the cartographer is, therefore, an artist and a scientist, simultaneously. However, the art and beauty of representing spaces and places in a flat surface stop there. After presenting the history of cartography, Raisz dedicates the next chapters of his textbook to discuss projections, scales, parallels and meridians, mathematics relations and universal conventions, where extremely technical knowledge is compulsory.

Contemporary cartographers usually do not move away from the general ideas displayed by Raisz. For instance, Gregory, Johnston, Pratt, Watts and Whatmore (2011) argue that three elements are central in a map: scale, projections and symbolisation. Scale concerns the mathematic relation of distances between the real area and the area represented in the map; projection is the type of distortion involved in representing a spherical object in a flat surface and symbolisation is the set of cartographic codes to interpret the map (Gregory, Johnston, Pratt, Watts and Whatmore, 2011, pp. 434-5). Therefore, maps "are a form of representation that is supposed to be scientific or neutral" (Cresswell, 2013, p. 187). Cartography, moreover, is the technique to produce maps, which, according to this conception, involves specialised technical knowledge.

The problem is that the three elements indicated by the authors serve to delimit who can represent spaces and places and who cannot. Their definition suggests a hidden situation of power imbalance. When they declare that the mathematical relation between the real and the represented space is central in a map, the authors stand for a technical and Eurocentric conception of cartography, to the detriment of other possibilities of spatial representation. The main objective of the map – to communicate information about a place – may be overshadowed.

In this conception, indigenous populations in Latin America, for example, do not produce maps due to lack of instrumental and technical knowledge, a situation that extends to other social groups such as illiterates, visually impaired or children. The object map demarcates the distinction between representatives of official cartography by the state or corporations while other spatial representations are considered drawings or sketches. As

Boaventura de Sousa Santos (2002) indicates, a unique model is declared true and other forms of conceiving and depicting the world are excluded, what he calls *desperdicio epistêmico* (epistemic waste). The author claims for the emergence of other ways beyond the ones that Eurocentric knowledge consolidated as hegemonic.

According to the traditional and mainstream perspective of map and cartography, Figure 1 (Carrera, 2017, p. 84), a representation of the old Aztec city of Amoltepec, which is nowadays Mexican territory, produced by the indigenous empire, is not a map. It does not have their basic requirements, namely: scale, projections and symbolization. This type of cartography excludes conceptions of relative, relational or symbolic spaces and only considers 'objective' ones. If they do not respect the set of techniques of cartography, in this perspective, the production cannot be named cartography and the product cannot be named map.

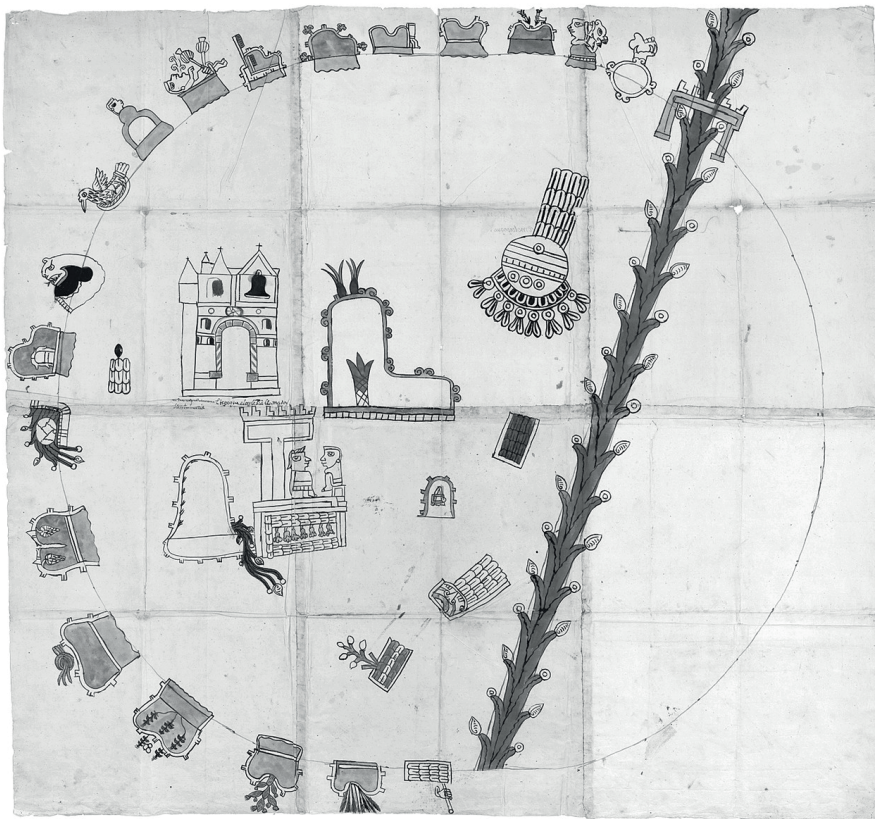


Figure 1: *Relación geográfica, Amoltepec, 1580*

According to the postcolonial conception of cartography, however, the object of figure 1 is undoubtedly a map. It has the wide requirements that define them: it is a graphic object with the goal to communicate information about a space or place. Moreover, it is a valuable form of expression of groups that European colonisation historically subdued and that have almost disappeared. It is not only an opportunity of speaking for a group who did not have the right to say anything for centuries and had their voice purged but also an important testimony of their social organisation, spatial ways of thinking and culture.

The indigenous knowledge-building process includes elements that the minds of scientific white men do not include. It is often performance-based or oral and is expressed through poetry, drama, dance, songs, and painting (Rundstrom, 1995). Dreams and dreaming practices, for instance, are part of the repertoire of information of spaces and places within many indigenous communities (Hirt, 2012). The presence of mythic, spiritual, sacred and non-human relationships in their mapping practices is evident. Mundy (1996) also indicates that maps produced by pre-Hispanic indigenous artists in Central America represented the community rather than an area. Therefore, they showed social relationships such as families' ties, parties, rituals and other dynamic features that the traditional scientific perspective does not.

As far as the development of this mainstream perspective of cartography is concerned, one should notice that the Europeans established it after the scientific revolution of Copernicus and the Renaissance. The set of techniques that developed in contact with Astronomy, Physics and Mathematics consolidated during the European maritime expansion, when colonisers appropriated indigenous knowledge or considered it useless, establishing Eurocentric scientific knowledge as the superior one. The birth of cartography is similar to that of Geography and other disciplines such as Anthropology, but these two have passed through important processes of renovation and self-criticism while cartography continued serving the interests of cultural dominance, economic exploitation and political oppression. As Bryan (2011, p. 42) puts it:

maps work in this context as a technique of calculation that are used to calculate distributions, organize

markets, and identify territories and populations, and associated with the notions of government as attaining the ‘right disposition of things’

The power of distinguishing what is (or not) a map connects with the power of dominating geopolitically territories. Therefore, when colonisers mapped indigenous lands, they were not only creating a powerful network of information about the areas but simultaneously dominating materially and subjugating the people who have lived there for centuries. “Maps actually create spaces and places because of their taken-for-grantedness”, argues Cidell (2008), and they serve purposes as statistics and other graphics that are perceived as absolute and neutral. Furthermore, there is no military conquest, political dominance and economic exploitation in the colonisation process that does not come together with the domination of “the mental universe of the colonised, the control through culture” (Ngugi Wa Thiong’o, 1981, cited in English & Mayo, 2012, p. 70). In other words, symbolic and material appropriation walk side by side.

The planisphere, in the way we are used to seeing it, for example, with the American continent on our left, Asia on our right, Africa in the centre but below and Europe on the centre-top, is not neutral (Emerson dos Santos, 2012), and nor is the association of the direction of North with the top side of a map. The spherical size of the Earth does not allow us to indicate a top or bottom part, therefore many maps from Antiquity or Middle Ages that reach us display the East, the direction where the sun rises, as lying on the top of the map. It was not until 1569 that the Flemish cartographer Gerardus Mercator produced a planisphere representing Europe on top of other areas (Raisz, 1948), hence creating a path for a Eurocentric representation of territory.

The idea of the North as a top side reflects political interests and implications². Because of that, the Uruguayan drawer Joaquín Torres Garcia created his own representation of the South American continent, displayed in Figure 2. His drawing has been used by many social and political movements from this region to demonstrate how they are not guided by

² Language is also crossed of political implications: in Portuguese and Spanish, North is used many times as a synonym of goal, purpose and objective.

values, ideologies or interests from the Global North. His proposal aligns with the postcolonial theory of authors such as Boaventura de Sousa Santos (2002), which advocates for “south epistemologies”.

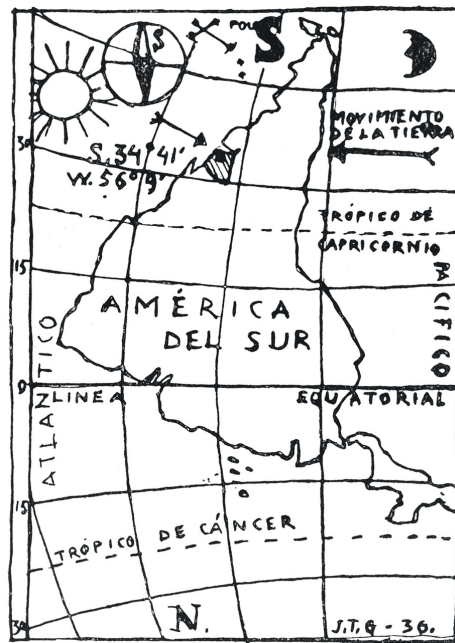


Figure 2: Joaquín Torres García’s south-at-the-top map, 1936

In this section, I argued that cartography has regularly served political ends, as Kemp (2007) indicates, and it has been used to reinforce dominant ideologies and hegemony. However, mapping can also contribute to the emancipation of marginalised groups. Women, ethnic minorities, indigenous people, LGBT and many other groups who have been excluded from territories as well as from the process of map making can also take part in activities of mapping. In the next section, I argue that participatory mapping events present opportunities for critical adult education and enhancement of critical consciousness with marginalised communities through presenting a series of examples, especially from Latin America.

2. Participatory Mapping and Adult Education

Participatory Mapping, roughly speaking, takes place when groups that live in the land meet cartographers to produce maps of the region. To change the power dynamics inherent in mapping it is necessary to enable members of the community

to become cartographers (Cidell, 2008). Challenging the official representations of the area, participatory mapping allows the introduction of narratives, place attachment, local ecosystem services, social values attached to the landscape (Hohenthal, Minoia, & Pellikka, 2017), preserve indigenous toponyms, land-uses and meanings of places (Sletto, 2015). There are ways of constructing learning on how to collectively produce a map. It enables us to examine the space through its issues and struggles (Emerson dos Santos, 2012), considers particular local contexts and includes phenomena missing from regular maps such as fear of women in the city, police harassment or surveillance (Kim, 2015). It can also call for greater transparency since it does not allow stakeholders to make decisions behind closed doors (Cidell, 2008).

The foundational work of Almeida (1994) in the region of Carajás, state of Pará, in the Amazon Rainforest, is the first participatory mapping event registered in Brazil. In his influential book *Carajás: Guerra dos Mapas* (Carajás: War of Maps), he reports that the Brazilian government tries to control the region through an apparent lack of function control, with outdated or precarious data and fragmented information provided by different state institutions. He argues for what he calls *cartografia social* (social cartography) as a possibility to include social relations, antagonisms, conflicts and spatial representations of social groups that live and produce in the region by virtue of mapping. Usually ignored or neglected in official mapping are not only indigenous groups, but also social movements such as the *Movimento dos Trabalhadores Rurais Sem-Terra* (Landless Workers Movement – MST) or *Movimento dos Atingidos por Barragens* (Movement of People Affected by Dams – MAB) that advocate for the human right to water and land. They have the right to participate in social cartography.

Participatory mapping continued to play a role in the struggle for environmental justice in the Brazilian Amazon rainforest. Ten years after Almeida's work, a network of social movements, community organisations and NGOs conducted a campaign called "In the forest there are rights: Environment justice in the Amazon", which produced the "Map of socioenvironmental conflicts in Legal Amazon: Environment degradation, social inequalities and environment unfairness suffered by peoples of Amazon" (Emerson dos Santos, 2012). According to this

author, in different meetings, geographers and other scientists exposed maps to social movements and organisations in where they identify where the conflicts occurred and analysed them. Emerson dos Santos (2012) argues that this initiative was an instrument of complaining and public pressure with government institutions to secure human rights and sustainable development of the Amazon region. The author highlights that, besides achieving the goals of exposing situations of conflicts and pressuring the government, the participatory methodology ensures learning of spatial operations through their struggle. In other words,

ao indicarem sobre um mapa os conflitos vivenciados, sua localização, quais são as “agressões” e os sujeitos coletivos envolvidos, os participantes estão aprendendo e apreendendo novas formas de pensar para agir, o pensar no espaço, e o pensar com o espaço. Neste caso, o objeto cartográfico é instrumento de identidade e articulação, e também de disputa nas leituras e representações da realidade que servem de base para tomadas de decisão e ações³ (Emerson dos Santos, 2012, p. 4).

Bryan (2011) discusses participatory mapping within a project in the Mosquita region of Honduras, an area where land speculators and agriculturalists are taking advantage of the lack of land delimitation to displace Miskito villagers from their land. The author was personally involved as a consulting cartographer for the Federation of Indigenous and Native Peoples of the Río Segovia Zone (FINZMOS) to coordinate a group that would map lands the native people traditionally owned. In the process of dialoguing while mapping the area with the Miskitos, the cartographers realised the villagers have a distinct conception of space, where kinship, residency and ancestry work as networks to access land and resources instead of property ownership. Therefore, the cartographer observed that the Miskitos do not

3 ‘By indicating on a map the lived conflicts, their locations, which are its aggressions and the collective subjects involved, the participants are learning and learning new ways of thinking how to act, thinking of space, and thinking about the space. In this sense, the cartographic object is a tool of identity and links, and also of dispute in readings and representations of the reality that serve as a basis for taking decision and actions.’

organise their space through fixed boundaries which contrasts with the government norms of bounding spheres of exclusive ownership.

Miskito villagers understand that their limits are fluid, overlap with other communities and depend on river flow, soil and weather conditions. Although it was impossible to create a map that represented this fluidity, Bryan (2011) acknowledges that the final product included overlapping of territory with other communities. From this experience, the Miskitos learned not only how to use GPS and how to identify the boundaries created, but also that it was necessary to create this form of “white knowledge” to have their right to the land respected by agriculturalists. The geographers involved in the project, on the other hand, learned about understandings of space by the community involved in mapping, and learned that this presented an opportunity to reframe their own conceptions of map and space.

In Venezuela, Sletto (2015, 2014) depicts a participatory mapping project with the Yukpa, an indigenous community in Toromo who have been forced to reside in the rugged and remote Sierra de Perijá. The author discusses the colonial and postcolonial movements of the occupation of the lands of the Yukpa, who intensified their struggle to reclaim lost areas and to preserve and represent their heritage and traditional occupation and use of land. She argues that in the process of mapping, the Yukpa people recall memories of violence, exile and deceit, which strengthen their identity and sense of belonging (Sletto, 2014). The author suggests that the articulation between action and landscape activate meaning for old leaders who had previously fought for land, thus improving their political consciousness while imprinting their culture on the maps they produced together with scholars.

Not directly related to indigenous movements but still foregrounding Latin American community experiences is the *Iconoclastas* initiative. Created by a couple in Argentina, this initiative involved the organisation of workshops for a year and a half in their countries, Paraguay and Brazil. They held these activities with community organisations, student unions, social and environmental movements, school teachers, women groups, among others. The goal was to engage people living

in the area to create local maps (Santos, 2012). Their maps are a tool for sharing experiences and information about the struggles of social groups “from below” in the form of graphic representations. Through the experience of mapping, the communities identify situations they wish to change such as factory pollution, lack of green areas or high density of traffic⁴.

Many other examples of participatory mapping have also emerged in the Global South, in regions outside Latin America. In Taita Hills, Kenya, Hohenthal, Minoia and Pellikka (2017) report that subsistence farmers’ participation in water resource management improved their quality of life through identification of problems related to water or water provision (Figure 3). One problem was that the official maps do not depict small streams and springs that are essential for people living in the area due to their small scale (1 cm on the map equals 500 metres in reality). The community involved in the mapping process also created timelines to identify important events in the history of the community and to reflect on them. Therefore, the participants cited the arrival of Christian missionaries, postcolonial occupation, world wars and demarcation of the lands as important events of their history and geography. According to the authors, “the signs on the community maps reflect the meaning linked to values and practices related to forest resources, land privatization, economic factors, and organisation of water supply” (Hohenthal, Minoia and Pellikka, 2017, p. 389).

⁴ Their experiences with pictures, along with publications in Portuguese, English and Spanish, are available in their website: <http://www.iconoclasistas.net/>.

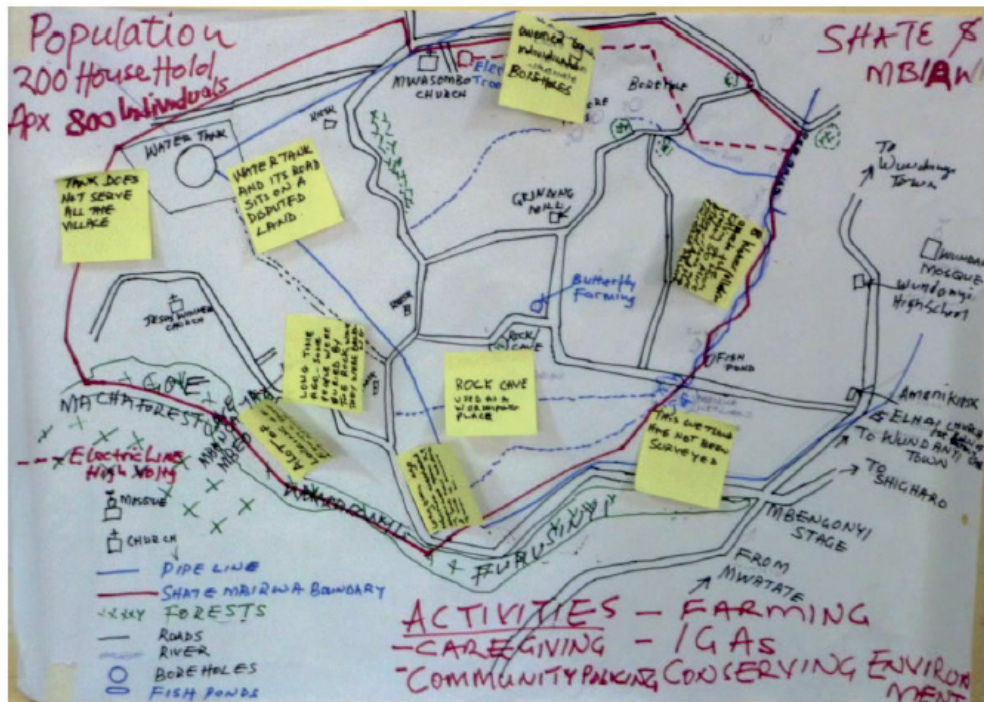


Figure 3: Participatory Mapping in Taita Hills, Kenya (Hohenthal, Minoia and Pellikka, 2017, p. 387)

Finally, adult learning of power dynamics within analysing of maps can occur even without a mapping process happening. In the United States, Cidell (2008) presents a situation where a community in Minneapolis could not stand airport noise anymore and decided to start to critically read official maps. They used their local knowledge and engagement to challenge state-centred scientific maps that supposedly indicated that the aeroplanes' noise would not reach their residences. Instead of producing their own map, the community gained critical consciousness when they noticed that the official state "maps portrayed did not match their lived experiences" (Cidell, 2008, p. 1213) and they advocated for more participation in decision making of urban interventions that affect their community.

Overall, all these experiences demonstrate that collective mapping practices can enhance the consciousness for political praxis, in the Freirean sense. They can, therefore, be tools for learning, engagement, action and change. Gaining critical consciousness of the space where the community lives is prerequisite for its members' empowerment, not only in Latin

America, where the struggle for land assumes important features, but worldwide. Official cartography is not neutral, given that it has stood together with the oppressors, but it is also a site of contestation. Therefore, it is a potential place for action for adult educators engaged in a struggle for social change.

3. Limitations

Marginalised communities and critical cartographers have been extensively using participatory mapping to grant rights and access to land. However, there is a major concern that some scholars have also been raising in the past years about the limitation encountered between academic scholars and these communities, especially indigenous groups. It involves the erasing indigenous forms of knowledge and reinforcing a different type of domination and colonisation, this one from 'critical scholars' with supposedly good intentions of securing the land for traditional occupiers. Some scholars such as Hirt (2012) indicate that using Western maps or GIS with Indigenous communities might be double-edged,

working as tools both of political and territorial empowerment and of cultural and technical assimilation. Therefore, these tools can restructure colonial power relations by, for example, misinterpreting Indigenous world views, knowledge, and territorial conceptions, and thus can contribute to increased Western cultural hegemony and greater state control of Indigenous lands (Hirt, 2012, p. 106).

She claims there is a need for decolonisation of western maps and methodologies within cartographic tradition. Even though some representations of dreams or mythological indigenous figures can appear in maps, poetry and dance hardly can be added without a map losing its original significance. The pivotal work of Ellsworth (1989) on critical pedagogy also inspires participatory mapping supporters to consider some of the possible challenges concerning this tool. However, one should be careful of not erasing indigenous ways of perceiving and relating to spaces and places just to conform with the western and state-oriented perspectives.

Participatory mapping should not serve as a substitute from one colonisation process to another, where white Western

'critical' educators replace white Western land invaders in silencing indigenous voices. These communities have their own critique, critical consciousness and strategies for resistance. Critical educators do not have universal knowledge, truth or skills to reward indigenous groups, they are all socially constructed (Wainwright, 2008). There are both tensions, contradictions and possibilities of collaborations between geographers and marginalised communities. While these practices liberate communities from some colonial totalitarian logics, they also re-create others, in a complex and multi-layered process (Andreotti, 2016), that this piece does not plan to solve. The author acknowledges a crucial paradox: while there is an urgent problem of dispossession in the context of modern colonisation that participatory mapping may help to tackle, it is also urgent to "keep alive different possibilities for existence not defined by the single story of progress and human evolution of modernity" (Andreotti, 2016, p. 285)⁵.

Cartographers should recognise and celebrate indigenous own ways of mapping and knowledge about space, which are distinct from mainstream and colonial cartography (Ahenakew, 2016). Socialisation into Western map-making should not be responsible for erasing gifts of other forms of knowledge of a place. A careful consideration of the ethical implications of these maps should always take place.

Conclusion

My goal with this reflection was to discuss the technique of participatory mapping, that has been slowly incorporated in geography and cartography practices. I have illustrated that it can serve as an instrument to improve adult learning, especially in what concerns indigenous and other traditional groups in Latin America. These groups have their own system of living on the land and extracting the resources they need, combining nature and culture through a different perspective from that of white men. The ways they perceive, relate to and represent the space, the place and the territory are distinct. This represents a challenge for the right of use of the land when negotiating with the official forces.

⁵ Cf. Andreotti (2016) for more information on the limits of the Freirean category of critical consciousness.

In this paper, I showed that the collective work of these traditional communities with geographers and cartographers presents an opportunity for informal learning for both, even with some potential limitations. While cartographers can often learn about the culture, organisation and system of thought of the former as well as re-elaborate their own system of thinking, the indigenous groups learn strategies of how to deal with state forces and how to speak the language of power emanating from the scientists. These convenings are a site for learning, so they are as important as the map itself. Gaining access to tools that are legible to mainstream powers is an important strategy of contesting those powers. I advocate for participatory mapping as a tool for approximation between scholars and communities, slowly undermining hierarchies of forms of knowledge and giving marginalised groups opportunities to speak and advance social change.

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