Challenges and Lessons from a Map-Based Survey

Beatriz Milz*

Gabriel Machado Araujo*

Kgomotso Mosikare**

Mojalefa Patrick Makitle***

Abstract: This text presents challenges and strategies from a map-based survey conducted in São Paulo, Cape Town and Dortmund, within the ICOLMA project. Using the Maptionnaire platform, we collected geospatial data on how the COVID-19 pandemic impacted mobility and access for marginalized groups. The study highlights issues with cost, data quality and connectivity. We also show how group discussions helped create a more welcoming environment for sharing sensitive information.

Introduction

In the ICOLMA project, we used a map-based survey tool called Maptionnaire to collect geospatial data from the respondents.

This text summarizes our experiences using this tool, including technical and social challenges. The map-based questionnaire asked participants to mark locations where they lived, worked, studied, received health care, did daily errands (ex. supermarket) and did social activities. They did this for three moments: before the pandemic (2019), during the first year of the pandemic (2020), and at the time of the survey (2023-2024). In total, we collected 305 valid responses across the three cities. However, we faced several barriers during fieldwork.

Main findings and challenges

One major difficulty was the lack of internet stability in some areas. The software only allowed saving responses after full completion, so unstable

* Universidade Federal do ABC (UFABC) ; **University of Cape Town; *** University of the Western Cape

DOI: https://doi.org/10.36942/dialogossocioambientais.v8i24.1462

Keywords: urban mobility; data cleaning; social inequality; COVID-19.

connections led to data loss. This affected response rates and meant some participants had to restart the entire process. Another challenge was the cost: Maptionnaire is an expensive tool, with a starting cost of USD 950 per month (Kyttä et al., 2023). This price is difficult to afford for research teams with limited budgets, especially in the Global South. After the license ended, access to the platform was cut off. This situation points to the need for more affordable and open-source alternatives in future research projects.

Cleaning the data was complex, as the exported files came in multiple tables. The team built a reproducible cleaning process in R (R Core Team, 2024) and developed an internal dashboard (Figure 1) to help visualize the data. This required advanced technical skills, which may be a barrier for other teams without such expertise.

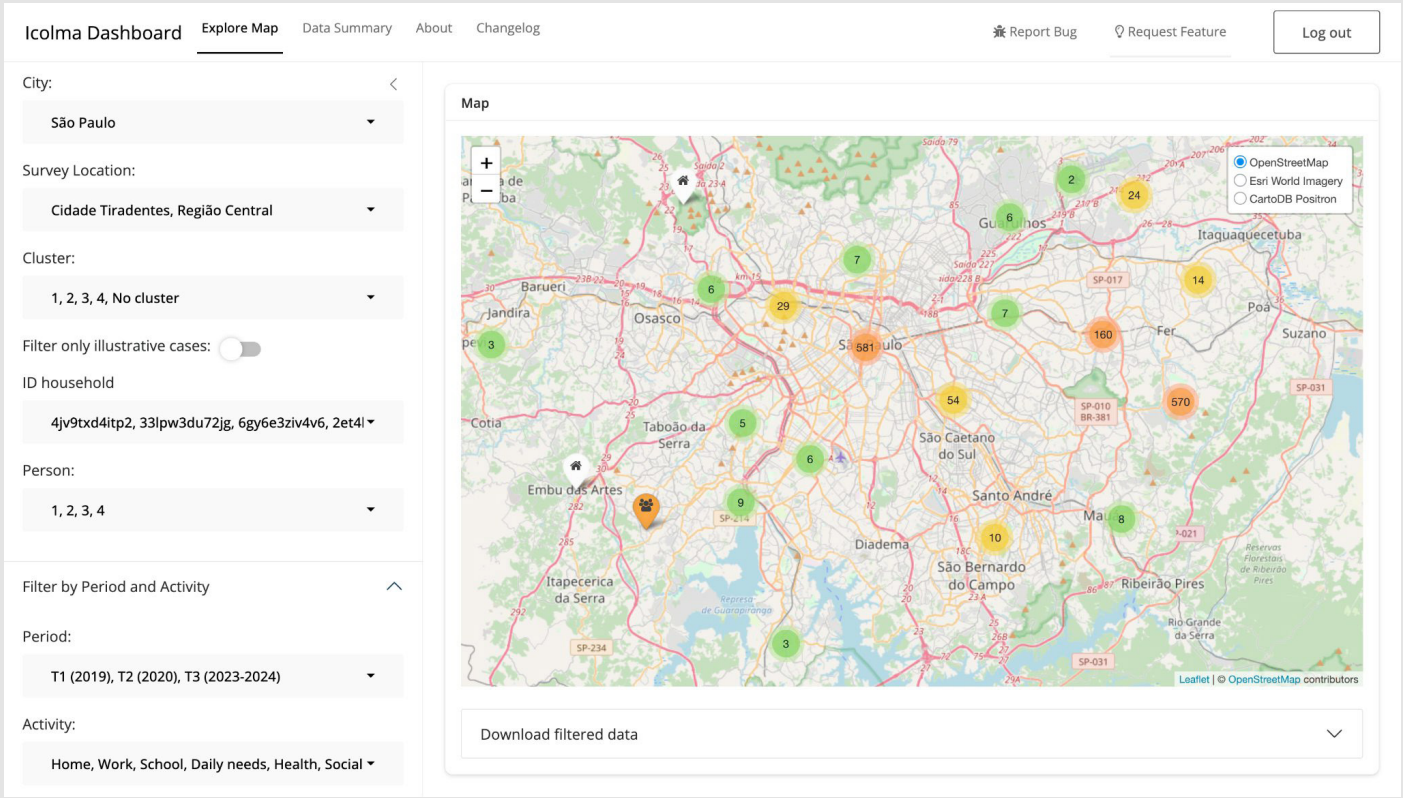

Figure 1. Screenshot from the Internal Dashboard, developed for the project ICOLMA.
Source: the authors, 2025.

What made a difference: group dialogue and local trust

In São Paulo, before applying the questionnaire individually, we held some group conversations with women from the local communities (Vella et al. 2025). After participating in these discussions, many women felt more comfortable responding to personal questions, including those related to income, violence or mental health. The presence of social workers and local leaders also made a big difference in creating a safe space for participation.

In Cidade Tiradentes, for example, one of the researchers already had strong ties to the community and local support centers for women. This familiarity helped open doors and foster respectful, meaningful dialogue. Snowball sampling and local leadership were key strategies for reaching more participants.

Figure 2. Discussion circle in Cidade Tiradentes, São Paulo.
Source: archive from project ICOLMA - Team Brazil.

Final reflections

Working with map-based surveys in unequal urban contexts demands more than technical tools. It requires attention to the social dynamics of trust, access and listening. Our experience in the ICOLMA project shows that combining geospatial tools with group dialogue, local networks and open-source practices can lead to more meaningful and inclusive research.

We hope these lessons support others who aim to produce socially engaged research using mapping technologies.

Acknowledgments: This study was financed, in part, by the São Paulo Research Foundation (FAPESP), Brasil. Process Number 2021/07554-8, 2022/08402-0, 2023/17054-8, 2024/05779-0, and with the support of the Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES/CNPq), CAPES DS Master's Scholarship 2024 and 2026.

References

KYTTÄ, M.; FAGERHOLM, N.; HAUSNER, V. H.; BROBERG, A. Maptionnaire. In: BURNETT, C. M. (org.). Evaluating participatory mapping software. Cham: Springer, 2023. DOI: https://doi.org/10.1007/978-3-031-19594-5_4

R CORE TEAM. R: a language and environment for statistical computing. Vienna: R Foundation for Statistical Computing, 2024. Available from: https://www.R-project.org/

VELLA, L. U.; MOMM, S.; BEZERRA SILVA, A.; FISCHER, L. N. C.; MACHADO, G. A. Pressupostos e estratégias utilizados no projeto ICOLMA sobre o impacto da pandemia na mobilidade e modos de vida da cidade de São Paulo: uma perspectiva feminista de pesquisa. In: ENCONTRO NACIONAL DA ASSOCIAÇÃO NACIONAL DE PÓS-GRADUAÇÃO E PESQUISA EM PLANEJAMENTO URBANO E REGIONAL, XXI., 2025, Curitiba. Anais [...]. Campina Grande: Realize Editora, 2025. Available from: https://editorarealize.com.br/artigo/visualizar/122565. Access in: 21 ago. 2025.