

MetaDocencia: A Community of Practice to Teach Teaching Open and Reproducible Research

Proposal for the Chan Zuckerberg Initiative (redacted)

<https://www.metadocencia.org/en/>

Note: This is not a full application. All sections with personal information have been removed from this document.

MetaDocencia (Spanish for meta teaching) is an inclusive and collaborative community that improves education by empowering instructors from underserved countries. We are a volunteer-based non-profit organization that nurtures a community of Spanish-speaking educators by teaching concrete, evidence-based, and student-centered educational methods. We collaboratively develop open, reusable, and accessible resources to foster effective training practices. MetaDocencia constitutes a good fit for CZI Education and Capacity Building Initiative. In addition, by being part of the CZI portfolio, MetaDocencia will contribute to the Open Science program's mission by "expanding participation and access to the scientific process (...) regardless of affiliation, background, or country of origin."

This proposal aims to take MetaDocencia from a volunteer-based organization to a sustainable non-profit organization in the longer term. Funding staff with significant protected time will allow MetaDocencia to:

1. Continue teaching technical skills for open and reproducible computational skills to Spanish-speaking researchers and instructors from Latin America and other geographies;
2. Generate new lessons and content for easy engagement in reproducible, responsible, and open science;
3. Solidify an active Latin American community of practice for open science; and
4. Nurture, guide, and inspire the development of other Global-South-centered communities of practice for open and reproducible research.

Who Steers MetaDocencia

A group of STEM researchers stewards MetaDocencia. We have experience teaching technical skills, delivering online classes, and working remotely, both in Argentina and internationally. Over the last few years, we have actively participated in and even led global open source communities of practice. For example, we represent Latin America as instructors and trainers for [The Carpentries](#) and we are responsible for certifying [RStudio Education Trainers](#). Some of us also have leadership roles at [useR!](#), [LatinR](#), and [R-Ladies Global](#).

In addition, MetaDocencia's team represents multiple currently marginalized groups in open science on several intersections such as gender, disability, migration status, first language, career status, affiliation, or geography. Thus, MetaDocencia helps us improve our realities by ourselves.

Team effort and the emergent community we steward also inspire others with our intersectionalities to do the same.

MetaDocencia's Impact in Less than Two Years

MetaDocencia started on March 16th, 2020. Since then, we have developed four modular and short workshops in Spanish. [Introduction to Online Teaching Essentials](#) and [Zoom Workshop](#) are hands-on workshops that model and teach how to run synchronous classes or events through Zoom or a similar platform. The Zoom Workshop allows instructors to fully try Zoom as hosts in a safe environment, including about 15 attendees. These two workshops are essential to close the access gap when teaching must happen through an online modality. Both synchronous and asynchronous online instruction was underutilized in Latin America before Covid-19. Our workshops [How to Teach Programming Online](#) and [Creating Interactive Tutorials with the {learnr} Package](#) are hands-on experiences for learning to teach using different types of coding exercises, live coding, and to create interactive exercises or tutorials for active programming learning.

In addition to engaging synchronous teaching, we believe that another fundamental open science entry point is a welcoming and inclusive community of practice. Thus, we also nurture an asynchronous community. For our synchronous content, participants experience inclusion practices (e.g., accessibility accommodations, a code of conduct, the right to privacy) starting at pre-registration for the workshop. Then, right before the workshop ends, our participants give us feedback and are guided to join our [Slack](#) workspace to continue the conversation and get in touch with the rest of the community. Our Slack workspace has almost 600 participants that exchanged over 30,000 messages in less than two years. Other asynchronous contents include 25 [blog posts](#) and [videos](#) in Spanish, featuring teaching tools, together with social media presence on Twitter, Facebook, Instagram, and LinkedIn to increase our reach beyond our current community.

Since March 2020, we have taught the workshops mentioned above 70 times. Participants include over 900 teachers out of 2,200 Spanish-speaking educators from 30 countries who registered interest to be invited to our workshops. We see a high level of engagement from attendees. Despite their situations, while in lockdown and internet connectivity instability, over 95% of the attendees stayed until the end of the workshop and filled out the post-workshop survey, expressing high satisfaction (Net Promoter Score = 88%). All MetaDocencia's courses and materials are offered for free and have a CC BY-SA 4.0 license.

MetaDocencia acts regionally while thinking globally. During 2020 and 2021, MetaDocencia participated or partnered with communities and conferences such as RStudio::global, LatinR, R-Ladies, Women in Bioinformatics and Data Science - Latin America, CarpentryCon 2020, and useR!2021, to name only a few.

The academic R programming community has recently recognized our impact by being [useR!2021 Keynote speakers](#). At useR! 2021 we presented [Teaching How to Teach Without Leaving Anyone Behind](#), the first Keynote presentation in Spanish (captioned in English) in an international R programming language conference.

All of the above was achieved almost entirely through a volunteer team that grew from 4 co-founders to 26 community contributors in its first year and by US\$1,000 awarded by the [Open Bioinformatics Foundation](#) and US\$30,000 awarded by [Code for Science & Society](#).

Taking MetaDocencia to the Next Level

The level of impact and growth MetaDocencia has experienced in less than two years is not sustainable on mostly volunteer time. Therefore, MetaDocencia's long-term existence requires stable funding for some part-/full-time positions that allow this community of practice to:

1. Generate new content for easy engagement in reproducibility open science. For example, a socially responsible generation and use of data require a situated approach centered in the different regions of the Global South. MetaDocencia's current expertise and established network are particularly strategic to advance this goal.
2. Organize and teach current and new content about open, reproducible research to Spanish-speaking researchers with a steady frequency.
3. Translate all our content to other open science marginalized languages, such as Portuguese, to increase access to geographies such as Brazil.
4. Nurture, guide, and inspire the development of other Global-South-centered communities of practice for open and reproducible research.
5. Establish governance and infrastructure based on open leadership principles and other best international practices for open science.
6. Elaborate a sustainable strategic plan for the next five years.

Work Proposal

We are requesting funding for two years. With this funding, we will specifically:

1. Develop, pilot, and teach four new workshops: Ethics in Data Science, Research Software Engineering with R, Data Science for the Agricultural Sector, and a version of the Zoom Workshop catered to blind people.
2. Teach one workshop (or shorter event) every two weeks for a total of 26 events per year with at least two instructors per event for a minimum of 15 attendees per event. All events will be online, free, and offer up-to-date content from the workshops and open-licensed materials newly developed or already in the MetaDocencia portfolio.
3. Enlarge our social media community base and our communications through other means to keep reaching more Spanish-speaking researchers and instructors interested in open research. We will also start facilitating more interaction among existing community members in our Slack workspace and a monthly newsletter to reach audiences outside social media. This item will allow generating interest and attendance to the events described in item 2.
4. Maintain collaborations with other communities of practice in open science, both regional and international, which is crucial for item 2. MetaDocencia currently collaborates with or participates in, for example, The Carpentries, R-Ladies Global, Women in Bioinformatics and Data Science - Latin America, and Open Life Science.
5. Start new collaborations with new like-minded communities such as CABANA, Wikimedia Chile, The Turing Way, Galaxy Training, and AfricArXiv.
6. Continue presenting MetaDocencia in Spanish-speaking open science and education conferences which is also vital for item 2.
7. Elaborate our governance allowing for input from all active MetaDocencia collaborators. Governance will include how decision-making and MetaDocencia steering will work and ways to recognize all community contributors together with their onboarding and offboarding processes.

8. Generate, including input and feedback from all collaborators, a five-year sustainable strategic plan to take MetaDocencia to the next level.
9. Elaborate a proposal for Wellcome Trust funding, a funder with interest in adding MetaDocencia to its portfolio.
10. Build rapport with new potential funders such as Google Education and the Bill and Melinda Gates Foundation.
11. Enrich our “MetaDocencia en una Caja” (Spanish for MetaDocencia in a Box) with all the processes followed by MetaDocencia. MetaDocencia in a Box will allow other Spanish-speaking open science communities of practice to be inspired and evolve from volunteer-based to long-term sustainable organizations.
12. Set up infrastructure and workflow for translating (and maintaining up to date) to other marginalized languages in open science such as Portuguese.
13. Translate all existing and new contents to Portuguese.
14. Incubate MetaDocencia-like communities in other geographies of the Global South (e.g., support for starting teaching in Portuguese of translated materials).
15. Publish the whole MetaDocencia experience from a volunteer-based community of practice to a sustainable organization in the Global South in an academic open access outlet.