

Change – The transformative power of citizen science

Co-creating the future: exploring practices of co-created citizen science research across Europe

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Abstract

During the ECSA 2024 conference, we led discussions to build and share learning on co-creation practices across Europe. These discussions were centred around thought-provoking prompts based on best practices with underrepresented groups, barriers in a local setting, and ensuring legacy. The key takeaways from this discussion are related to building trust, community engagement, and time.

Keywords: challenges, co-creation, citizen science, community, inclusivity.

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Introduction

Co-creation is “*Citizen science that has been respectfully and equitably designed with and for the community*” (Dr. Claire Murray, participant of workshop).

At Stockholm Environmental Institute (SEI) York, our Citizen Science research group has been running and consulting on citizen science projects since 2008. Our aim is to create broader social change through citizen science theory and practice research that is inclusive, ethical, sensitive to existing power dynamics, and that equally centres both research and citizens (we define citizens as citizens of science,

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and citizens of the world). Recent co-created citizen science projects of ours include studying air quality in schools ([SAMHE](#)), working with young people with lived experience of mental health ([Youth LIVES](#)), and exploring how to achieve [inclusive water and sanitation services](#).

Co-creation involves participants at all stages of the scientific process, from setting research objectives to dissemination of findings. Co-created citizen science projects, by nature, originate in direct response to the needs of the community. These projects are typically driven by a firm commitment to deliver tangible benefits to the residents within these communities, though are not without challenges.

Benefits and challenges of co-created Citizen Science

The benefits of co-creation are far reaching as shown in Figure 1. Active engagement of citizens at every stage of the scientific process ensures that the outcomes are deeply entrenched within the community's reality and context (Gunnel et al. 2021), can promote a more democratic production of scientific knowledge (Skarlatidou et al. 2019), and foster knowledge exchange among actors from different spheres who may not typically interact, amongst other benefits.

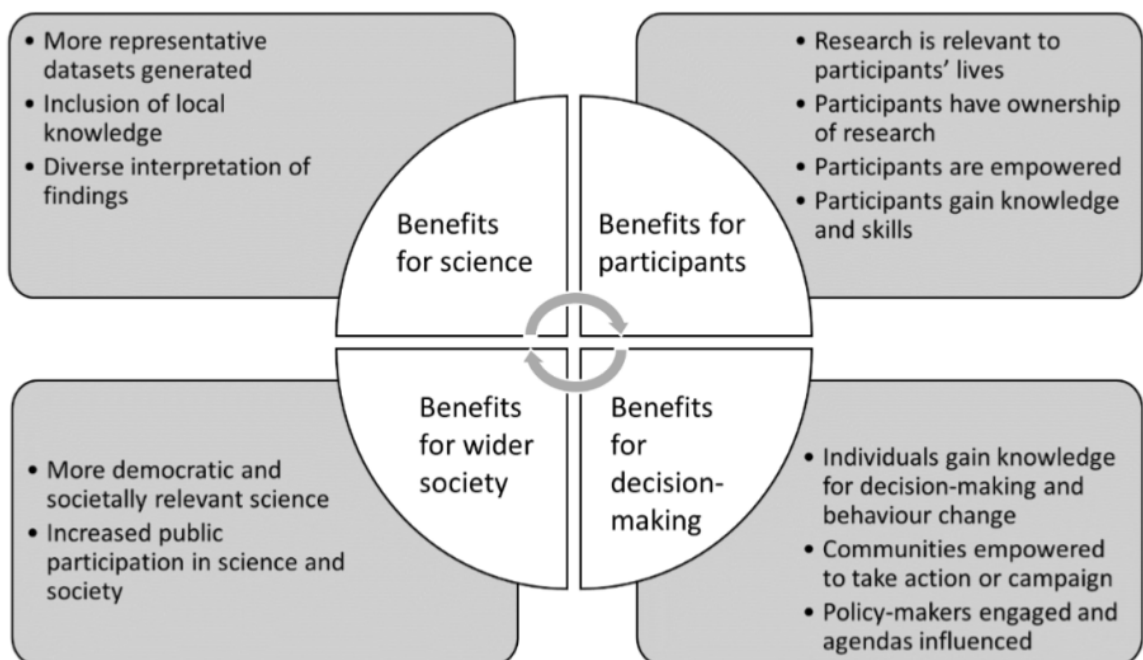


Figure 1. Benefits of co-created Citizen Science (Pateman and Wilkman, unpublished)

Co-creation also presents a range of challenges, unique to other citizen science methods given the depth of involvement from participants. Although broad challenges are well documented, as shown in Figure 2 (Gunnel et.al 2021), more insight into specific aspects of co-created Citizen Science is needed, specifically

guidance on how to engage with underrepresented communities, overcome local barriers, and build legacy to ensure a non-extractive experience for participants.

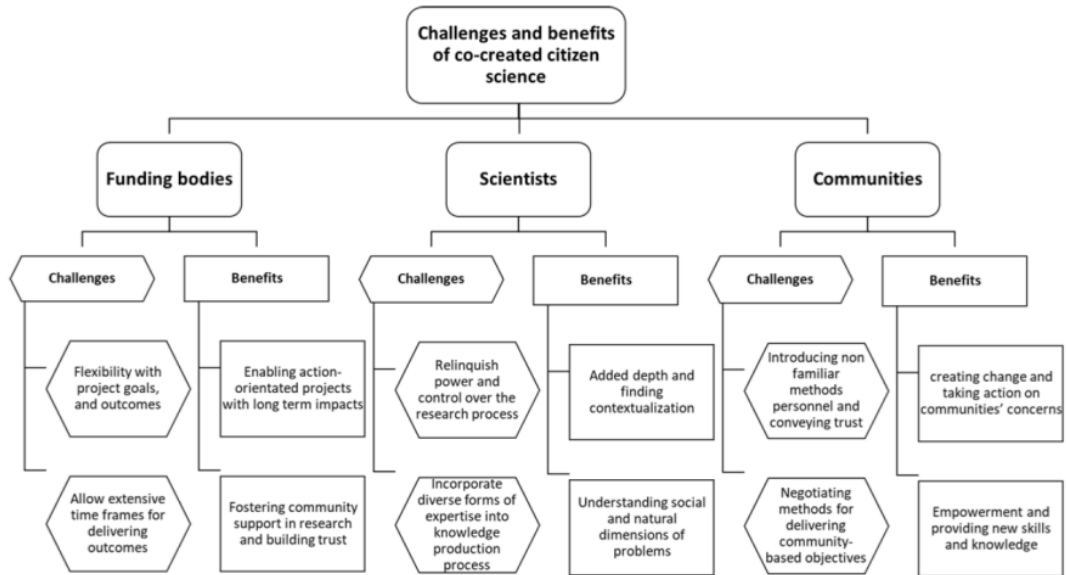


Figure 2. Challenges of co-created Citizen Science (Gunnell et al. 2021)

Discussion

To collect insights into these challenges to co-created Citizen Science, we led a discussion session for those interested in or already using co-creation in their work. Sixteen people from across Europe attended, bringing knowledge on co-created Citizen Science approaches from different countries. The discussion prompts were:

- What are the best practices when doing co-created citizen science with underrepresented groups?
- What are the barriers to doing co-created citizen science work in your country / setting? How have you overcome these?
- How have you ensured a lasting legacy with co-created projects? Or how could you in the future?

Engaging with underrepresented groups

Though co-created Citizen Science is founded in equitability, there are still communities within society which are underrepresented across Citizen Science projects (Pateman et. al. 2023). We asked, “What are the best practices when doing co-created citizen science with underrepresented groups?” and summarised the discussion below, defining “underrepresented groups” as those underrepresented within the participants’ country.

- **Local Leaders:** Working closely with local leaders or facilitators who are already embedded in the community is an important way of reaching those you want to engage. Wherever possible, bringing community representatives onto the research team will help reach more diverse audiences.
- **Finding people where they are:** Even if you can't involve community representatives on your research team, you can still work with local organisations to actively go to the places where your participants spend their time, both in the real world and any digital spaces. "Gatekeepers" who work in your target community can help make connections. As always with citizen science, value those who show up—make sure they know their contribution is important and appreciated.
- **Taking time:** Building trust in the gatekeeper organisations and target communities takes time, as does understanding their different contexts and situations, considering culture, goals, interests, history, and fears. Additionally, respect should be given to things that participants do not want to share, for example, locations of particular species, or family recipes.
- **Clarity and flexibility:** Co-creation which centres the participant and their experiences requires you to regularly reflect on the project and be prepared to stop or change the research to accommodate participants' needs and ensure that they are safe / comfortable taking part. But whilst flexibility is required, you also need to give clear information about the project and what participation entails.
- **Common communication:** Clear communication is important, and you need to speak the language of your participants, both in terms of the actual words you use and the channels for communication.

Local barriers

Co-creation can be considered a non-traditional research method, therefore there can be considerable barriers to overcome, including barriers to participation, institutional challenges, and obstacles relating to researcher experience and perception as summarised below:

- **Finding the right people:** Lack of awareness of the opportunity is a key barrier for recruiting participants, as is participants' knowing what sort of contribution is valuable, and who the project is aiming to reach. There can also be challenges getting people to run co-created citizen science projects. Some researchers may lack knowledge about citizen science or the skills needed for engaging with participants.
- **Power dynamics:** There are always power dynamics involved in all projects—this should be acknowledged rather than ignored! Those leading projects will be responsible for any formal ethical approvals required, risk assessments, evaluation, project reporting, and thinking about publication authorship, which can reinforce hierarchies.
- **Structural barriers:** Co-created projects are sometimes challenging for funding panels to review, as elements such as research objectives and risk assessments will not be clear at the application stage, unless the proposal has been co-created with participants.
- **Time and scale:** As co-created projects require time to build, this can limit them to being relatively small in scale. Those running projects need to think carefully about what scale they want to work on, bearing in mind that the smaller the scale, the more relevant it is likely to be to local participants.

Legacy

Co-creation should be non-extractive and non-exploitative, and as part of this, it is important to create a lasting legacy to support continued engagement in the topic area, participants' interests, and to affect change in society. Insights are summarised below.

- **Budgeting:** Build time and finance into your projects to allow dissemination of findings well beyond scientific papers, through whatever mechanisms your participants wish.
- **Exit plan:** Plan the end of the project early, thinking about what other groups or opportunities you can signpost participants to. Make sure you build in time and budget for archiving information about the project and the data collected. Make sure you discuss with participants to see how they would like the data to be used.
- **Collaborating on the legacy:** Project legacy cannot depend on one person, so this responsibility should be shared, but it should be recognised some people might want to just be involved for the project lifetime. Work with special interest groups and other non-governmental organisations to understand what they could offer your participants once your project ends. Ensure that any additional funding bids arising from the project involve participants, so that the co-creation cycle continues!

Concluding comments

Discussions hinged around three key areas: trust, community, and time. To further these discussions, Dr. Rhys Archer will be leading a network on co-created Citizen Science. If you would like to be involved in ongoing discussions, please get in touch.

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