Handbook of Youth Citizen Social Science

Working with Young People and the Local Community for Social Change

YouCount
Youth Citizen Science

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"In citizen social science
we get much closer
to the young people and
their daily lives.
It results in different kinds
of data and experiences.
We get thicker insights
and understandings
of a larger part of their life
world, and not just their
responses and answers
to the research questions."

Researcher, Norwegian case

Foreword

Dear Readers,

It is with great pleasure that we share the Handbook and Toolkit (hereinafter the Handbook) for co-creative youth citizen social science. The Handbook is written for anybody interested in conducting a co-creative citizen social science project in practice, and especially for those interested in working together with young people and the local community, on social issues and for social change.

Citizen Social Science brings together social science researchers focusing on social issues, social phenomena and the social dimensions of the world, while applying and integrating social science methodologies and theories in their research. These characteristics influence, for example, the focus and management of the project, the role of the researchers, how we work with our participants, and ethical concerns. There are many handbooks and guidelines for conducting citizen science, but mostly within the natural sciences. Yet, there are few handbooks and toolkits detailing hands-on citizen social science with young people, and focusing on co-creative qualitative or mixed-methods approaches. This handbook thus represents a unique contribution to the field of citizen social science.

As elaborated on in the Introduction, the Handbook builds on the YouCount project which is a EU funded project that developed from 2021 to 2023 on the Horizon 2020, Science with and for Society (SwafS) programme and involves 11 partners from 9 countries across Europe. The main objective has been to generate new knowledge and innovations to increase the social inclusion of youth at risk of exclusion across Europe – through co-creative youth citizen social science. Throughout the project, we have explored and evaluated how best to work with young people and local stakeholders to increase knowledge about social inclusion based on young people's own perspectives and to promote more inclusive science and societies.

Conducting inclusive and co-creative science is thus a core ethos for YouCount, and the Handbook intends to support these overarching scientific and social visions. Through the Handbook, we hope to enable and inspire the involvement of young people in research and social innovation – from the local to the European level, and internationally.

As Project Coordinator, two significant insights have been the importance of building trusting relationships and creating safe and comfortable settings. I've also seen the benefits of long-term collaborations, as well as how essential it is to provide support, education, and training for young co-researchers (citizen scientists), in order for them to be able to participate equitably and meaningfully. Another important lesson learned has been the dynamic nature of co-creative research and innovation. This way of working requires flexibility to be able to adjust to participants and local needs. Still, the importance of firm project management, detailed planning, good infrastructures, and enough time and resources should not go unnoticed.

As you will see from our "Aha"- and "Oops"- examples, the Handbook is based on lessons learned from our successes (or "what worked") as well as our mistakes and insights around what we could or should have done differently. Through this openness we want to encourage reflexive scientific practices and a good learning culture in citizen social science inspired by the tradition of Responsible Research and Innovation.

The Handbook chapters and toolkit bring forward the many voices of the researchers in this large project and describe how the various research teams have worked in the local cases. Their different voices and approaches reflect their different backgrounds in social sciences, displaying the richness of this group of disciplines and how they can contribute to citizen science.

The Handbook can only offer a glimpse of the great work carried out by the youth and the local teams. We sincerely want to thank our participating young citizen scientists and local stakeholders who have made this Handbook possible. We also want to express our gratitude to our Advisory Board and Safety- and Ethics Board members for your unwavering support throughout the project, participation in the final conference, and efforts in promoting YouCount to a broader audience. We hope that the Handbook will also prove to be a valuable resource for you. We also want to thank the EU for financial support to the project, and all other institutions, organisations, researchers and "sister- projects" for citizen social science in the SwafS programme who have supported the project along the way. Lastly, we want to thank the SPOTTERON team for their outstanding work on the layout and graphics of the Handbook.

I look forward to learning more about how citizen social science develops in the coming years and reiterate our Consortium's commitment to share our knowledge from the YouCount project for the benefits of citizen science and for enhancing social science and society collaboration.

Best wishes,

RESEARCH PROFESSOR REIDUN NORVOLL
YouCount Project Coordinator

List of Abbreviations

Abbreviation	Definition
CS	Citizen science
CSS	Citizen social science
C-YCS	Young citizen scientists from the local community or targeted organisation or population (lower level of participation)
DEC	Dissemination, Exploitation, and Communication
DPIA	Data Protection Impact Assessment
EC	European Commission
ECSA	European Citizen Science Association
EU	European Union
GDPR	General Data Protection Regulation
ICT	Information and Communications Technology
KPI	Key Performance Indicators
LL	Living Lab
MoRRi	Monitoring System for Responsible Research and Innovation

Abbreviation	Definition
OA	Open Access
OS	Open Science
PAR	Participatory Action Research
R&I	Research and Innovation
RRI	Responsible Research and Innovation
R-YCS	Young Citizen Scientists Participating in the Research Team
SME	Small and Medium Enterprises
UN-SDG	United Nations Sustainable Development Goals
WP	Work Package
YCS	Young Citizen Scientist
Y-CSS	Youth Citizen Social Science
YouCount app	YouCount App Toolkit on the SPOTTERON CS Platform

1 Introduction

Authors: Patricia Canto-Farachala, Aina Landsverk Hagen, Reidun Norvoll & David Borgström

A handbook is expected to contain instructions or advice about how to do something. So, our first advice to readers is to expect to find a lot about what we learned from designing, implementing and evaluating Youth Citizen Social Science. Our second advice is to not expect detailed instructions or recipes. Indeed, while there can be common guidelines on how to include young people as co-researchers in citizen social science projects, one-size fits all approaches don't work because each social context is unique. So even if we use the "hands-on" and "how-to" language and include many bulleted lists, boxes with key insights, even a toolkit, our hope is that our learnings inspire you and help you reflect and make decisions for your own practice.

The lineage of Youth Citizen Social Science can be found in Citizen Science, an 'umbrella' term that describes a variety of ways in which the public participates in science and, more specifically, in the approach developed from the work of Alan Irwin (1995). Irwin's approach sees citizen science as a way of democratising science in general and social science in particular, through dialogue and to serve the needs of society. However, while Citizen Science is well established in the natural sciences (Ballard et al., 2017; Vohland et al., 2021), citizen social science found its way into the academic discussion in Europe more recently (Albert et al. 2021). Funding granted by the European Union under the Science with and for Society (SwafS) programme, to large projects like YouCount, COESO and CoAct (see recommended reading below) that explore citizen science in social sciences and the humanities has fueled this trend. We can therefore safely say that our quest to explore youth citizen social science in practice in nine European countries is another turn of the key in a high-level aim of engaging society in participatory democracy in Europe (EC, 2016).

Before saying a bit more about the differences between citizen science and citizen social science and about what makes this handbook unique, it is important to clarify that social science research has a long-standing participatory tradition (Reason & Bradbury, 2006) and that citizen social science has deep roots in this tradition. Participatory Action Research (Albert et al., 2021) and Participatory Communication (Canto-Farachala et al., 2023) have been signalled as among citizen social sciences' epistemic foundations. This accounts for blurred perimeters and begs questions on how citizen social science can complement participatory research, like, for instance, how to combine their

strengths in favour of global democratisation (Canto-Farachala & Norvoll, 2023). In any case, and risking a spoiler, allow us to say at this point that the overall scientific ambition of our experimental youth citizen social science project was to develop citizen social science by digging deep into social sciences' rich participatory tradition.

So what makes citizen social science different from citizen science? In a nutshell: Its focus on social issues, social phenomena and the social dimensions of the world. Indeed, while citizens participating in citizen science projects can contribute to the data gathering stage of a research project with observations pertaining to the natural world (typical examples are photos obtained when bird and galaxy watching), participants in citizen social science projects contribute observations pertaining to the social world and their own lived experiences in it.

This brings to the forefront an important ethical component that cuts across the whole research process, becoming a critical dimension when citizen social scientists are young people. As our readers will see, the ethical dimension in youth citizen social science is present in most of the chapters that make up this Handbook and is perhaps more salient in the ones addressing documentation and how to leave the field when the project ends. Therein lies one of the unique contributions of this Handbook to the citizen social science field. Another unique contribution is our approach to communication linked to the ethical dimension through its dialogical perspective and also cutting across the whole research process.

To organise our own ideas, ambitions, thoughts and experiences on the totality of working like this, we early on co-designed a framework in the analogy of a house. This framework is also structuring the handbook chapters that you are about to explore (See Figure 1).

The House of Youth Citizen Social Science – a Framework

Welcome to ***The House of Youth Citizen Social Science,*** a framework for thinking, planning and doing citizen social science research projects with a co-creative approach (Chapter 3). The ground that such projects stand on, is both constituted on broader societal challenges (Chapter 2 on the social inclusion topic) and more concrete research aims reflecting people's pressing concerns in their local context (see description of the YouCount project below).

Before we move into the house itself, it is worth zooming in on the two vertical pillars of the house, namely research ethics and relations ethics, and communication and documentation. We realised that these are not isolated activities – separate rooms – in a research process, but rather integral to all activities in all phases. This is reflected in how ethics and communication are integrated in the discussions throughout the book.

Entering the ground floor of the house, you will maybe be surprised, as it does not immediately take you into the data collection phase. You might think, isn't this about research – why is the first room you enter called the "Fun and safe space"? Well, in our longitudinal, transnational experience of collaborating with youth, we have realised that the social and relational aspects of team work needs to be established before any successful "hunt" for data can be accomplished. So this handbook will give you insights into how icebreakers, competitions and pizza can make citizen social science tick. We thus have included a chapter on working with youth, where we discuss how to negotiate expectations and demands, and also how different techniques and tools can help in sharing and building the research process on their experiences (Chapter 3).

On the first floor, you will meet three approaches, rather than discrete methods: "The observational gaze", "the listening mode" and "the survey mindset". These are our ways of thinking about the broad variety of research methods we have in our toolbox when we work inter- and transdisciplinary, from participant observation, to interviewing and appreciative inquiry to questionnaires, combining qualitative and quantitative approaches to data collection (Chapter 3).

On the second floor we are working collaboratively to make sense of our findings, to develop ideas together in order to reach for social innovations and policy change. Here we expand our co-creative approach to include community stakeholders and politicians or other people in power positions, where the combination of our ideas and analytical insights may spur change that reach further than just the local case, context or citizen social science house itself.

No wonder then that the rooftop and attic is all about communication, this is the place to position yourself when shouting out to the world – "Look at what we found!" (Chapter 4). The kite encapsulates the processual evaluation studies (Chapter 6), set apart from the house and valuable to others who are inspired to design a similar project but in a different context.

Lastly, but not least – growing up from the ground and in the shadow of the house, stands the impact tree (Chapter 7). We are always becoming, from the initial stages of project idea development and planning, throughout the research itself and into the complexity of initiating and promoting social change based on new knowledge.

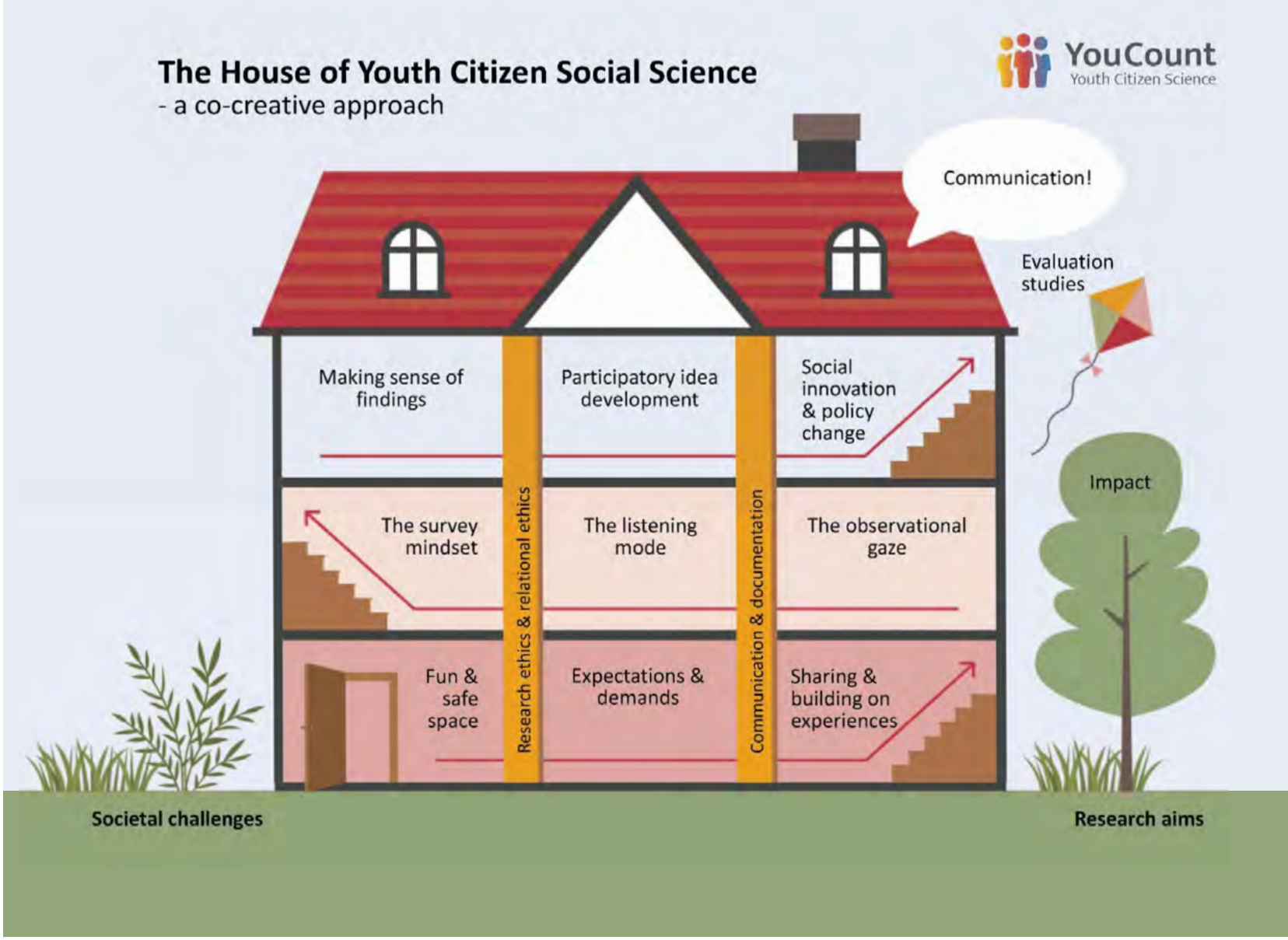

Figure 1: *The House of Youth Citizen Social Science: A co-creative approach.*

National workshop as part of the YouCount UK case local dissemination. Photo by Jo Brown.

The YouCount Project

This handbook is based on what our group of social science researchers learned from designing, implementing and evaluating YouCount, a three-year youth citizen social science project financed under the Horizon 2020 SwafS programme. Our main objective was to generate new knowledge and innovations to increase the social inclusion of young people across Europe by experimenting with co-creative youth citizen social science. That is, our project worked to develop new knowledge on youth social inclusion with young people participating as young citizen social scientists in all the stages of the research process. We brought together 9 European countries working on 10 different case studies. The young people participating in the different cases were aged between 13 to 29 years and some of them were experiencing situations that put them at risk of social exclusion. A related objective was to provide evidence of the actual outcomes of doing this kind of research and of its costs and benefits.

The 10 case studies worked in a flexible way in local living labs, that is, the relational spaces where the research teams engaged in dialogue with young people from the community and stakeholders to address how to increase social inclusion for young people (See Figure 2). Young citizen scientists, whom we collectively referred to as our young co-researchers, were involved in both the design and use of qualitative and quantitative research methods. They were also involved in the development, pilot use and evaluation of an application for smartphones and computers aimed at helping them to gather observations from their everyday experiences of inclusion and exclusion. The ethical implications for national and European science policy have been described elsewhere (see Canto-Farachala et al., 2023).

Figure 2: *YouCount Research Case Design*

We also combined different participation levels (Hakley, 2018; Richardson, 2014), for example, youths from the local communities could have a moment in time participation in the project, but for those participating as citizen social scientists we did strive to achieve their thorough involvement in all stages of the research process. So we invite our readers to keep in mind our definition of youth citizen social science while going through the Handbook, we think it can help to picture the challenges behind our many learnings.

What is Youth Citizen Social Science?

Youth citizen social science is a form of participatory social research that involves youths as citizens working together with social scientists creating and communicating new knowledge. Centrally, it means striving for youth participation and involvement in all aspects of the research design, data collection, data analysis, writing up and scientific communication.

In order to achieve that level of involvement, ethics and communication were important pillars in our project (Figure 1). YouCount's ethical foundation is based on Responsible Research and Innovation (RRI). In other words, we worked with a heightened awareness of the process that would lead to democratising and making science more inclusive by bringing in underrepresented youth populations, while at the same time addressing the challenge of youth social inclusion. We also made sure that we anticipated the future consequences of our research, and strived to be reflexive, inclusive and responsive in all stages of the process. The ethical dimension of our project also involved working with a gender-sensitive approach and being alert to how it influenced the research design and its outcomes. We were also responsive to how the local context influenced gender balance. In the process, we were able to give names to the ethical challenges that emerge when engaging in high co-creation levels in citizen social science and provide suggestions on how to mitigate and handle them along the way. This is particularly relevant for young co-researchers deeply involved in the research teams and who have an active role in it for a long time: It is important to take good care of them and avoid overburdening them. We included a safety- and ethics advisory board with experts in the field and held an ongoing dialogue with them throughout the project.

Dialogue was another key pillar for us, inextricably linked to the research process and its ethical dimension and coherent with our aim of fostering democratic and inclusive science. The theoretical underpinning of our approach to dialogue was Participatory Communication: its interest in the active involvement of participants in the communication process and its aim of empowering people by giving them a voice and enabling them to actively contribute to decision-making, problem-solving, and social change (Canto-Farachala et al., 2023; Barranquero, 2017; Cornish & Dunn, 2009).

As shown in Figure 3 there are 3 levels in which communication unfolds in the research process, according to their dialogical intensity. In practice, the three levels may overlap and complement each other; they are not a sequence but develop simultaneously in some and/or all parts of the project. Understanding communication in this way helped us to problematize and interrogate it continuously as a way of striving to maintain the dialogical essence of the project and shining light on how communication supports, enables and takes care of the research process.

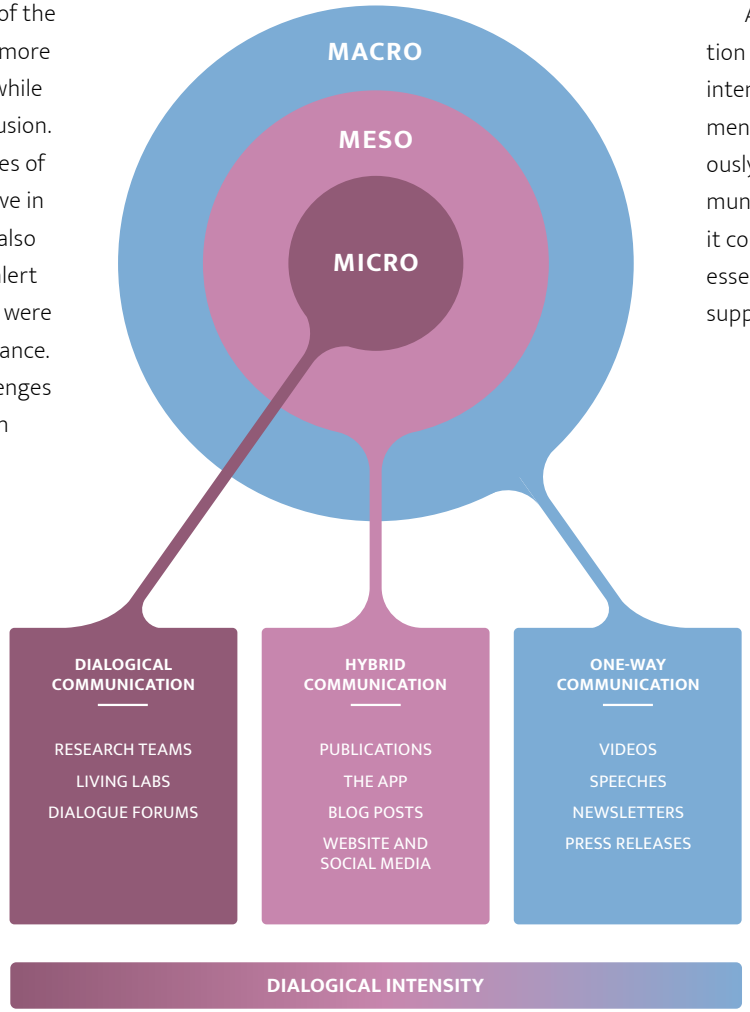

Figure 3: *Communication in Citizen Social Science*
Source: *Adapted from Canto-Farachala et al. (2021; 2023).*

What are the implications of this approach in a youth citizen social science project?

- Dialogical communication is not independent of the research and cannot be separated from it: it underpins, enables and takes care of it.
- Dialogical communication is not solely in the hands of communication professionals, all participants engage in it, irrespective of their role in the project (project managers, researchers, young citizen scientists, ...).
- Dialogical communication, with its aim of empowering people to actively contribute to decision-making, problem-solving, and social change, is closely linked to the project's outcomes and its impact.

The YouCount Cases

Even if our handbook is not a description of the YouCount project, nor is it meant to report on it, the learnings and examples that populate the following pages are based on the 10 cases that came to life with our young co-researchers. It would be difficult to read about research methods, co-creation or stakeholder engagement without having a little bit of context. So this subsection is meant to introduce the cases and help you picture 9 different European communities that worked together from February 2021 to January 2024 to improve social inclusion for young people through youth citizen social science.

The map (Figure 4), shows where the cases developed in Europe and highlights their main focus. All cases departed from one or more of three overlapping dimensions of social inclusion found in the literature: (i) participating in social life; (ii) being connected to others and having a sense of belonging; and, (iii) being a citizen. New meanings of social inclusion as experienced by our young co-researchers were incorporated as part of the research process. The cases also engaged a rich diversity of stakeholders and other young people from the community. Our readers will find their voices in this Handbook as snippets from YouCount's deliverables in the form of direct quotes in the text or in what we call our "oops!" and "aha!" moments. A list of the project's deliverables can be found in Chapter 9 and they are referenced throughout the Handbook by their number (D.4.4: D.3.2: etc...).

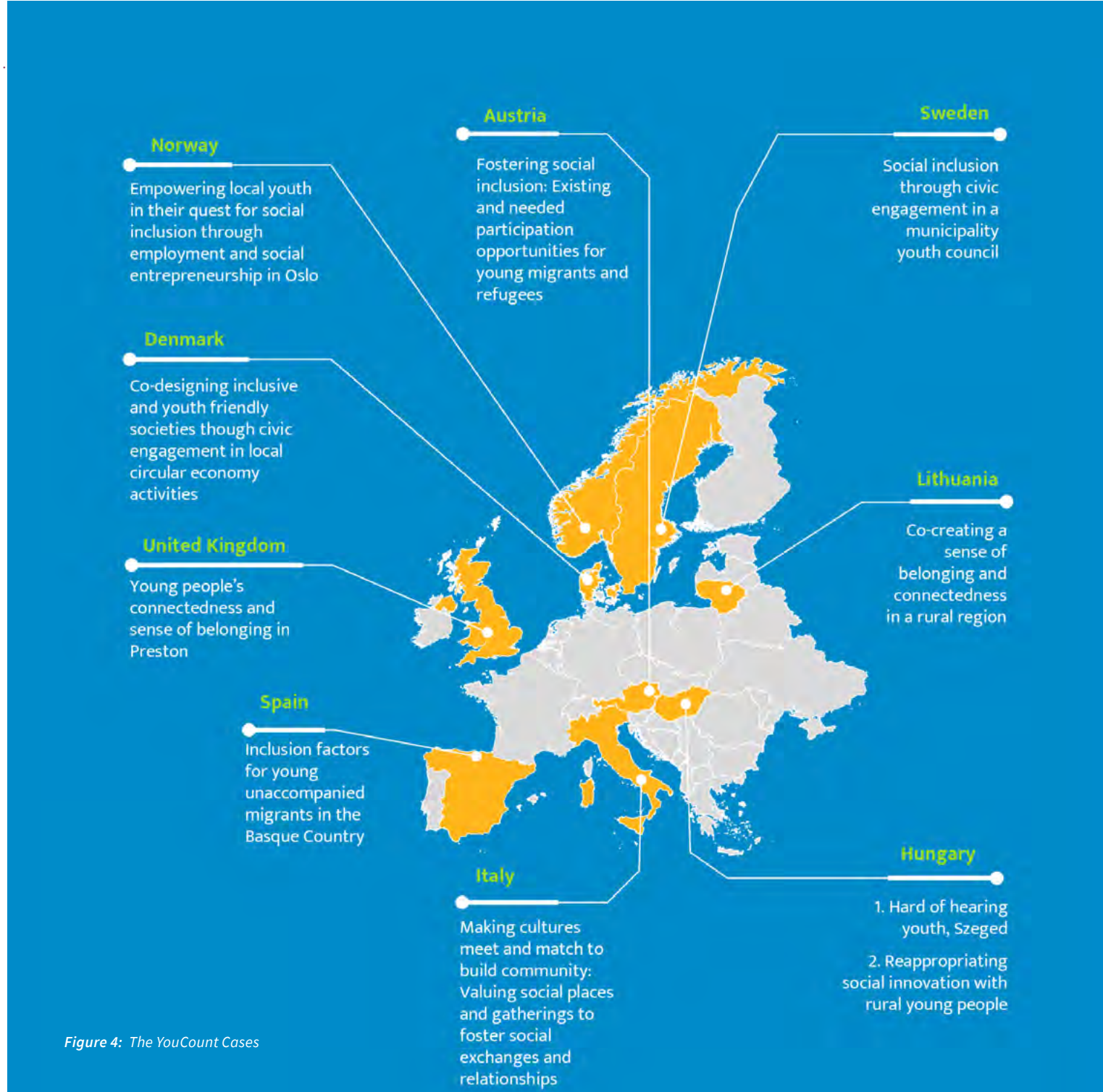

Figure 4: *The YouCount Cases*

How to Move Around the Handbook

We started this Introduction by advising our readers not to expect detailed instructions or recipes and yet, we finish it with advice on how to read this Handbook. Please allow us this incoherence. The thing is, it has not been easy to bring together (in a streamlined way) the many lessons, learnings and experiences behind this complex project. Nor did we aim for that. A perfectly streamlined Handbook would have disguised the true nature of the complex research process behind its contents, pretending that addressing social challenges through true participatory research processes is something that can be done following set procedures and time frames; pretending that the language was neutral, and not that of anthropologists, sociologists, economists or psychologists; that we all spoke in English and not in German, Spanish, Swedish or Italian; that we could all hear.

This does not mean that we did not work on trying to make it readable and engaging for academics, practitioners, youth organisations, policy makers and everyone interested in approaching or learning about a youth citizen social science project, but we are aware that we might not have reached the perfect balance. Our hope, however, is that academics find interesting reflections, that practitioners and youth and civil society organisations can use the Handbook as a reference and inspiration for their own projects. We also hope to raise awareness among policymakers at the local, national and European levels of how much it takes to develop a project as ambitious as YouCount; of all that can be achieved and how that speaks to science policy.

Indeed, readers might feel an undercurrent in the Handbook: youth citizen social science projects need time to build trust, safe spaces and shared languages before co-creation can even begin; training is key and also needs time; social construction processes are emergent and call for flexibility and change of plans; most of them need time spans that are normally at odds with the time frames of funding organisations. The undercurrent is a call for slow and caring science (Mihók et al. 2023); a paradox when faced by the urgency of co-creating more inclusive societies.

The YouCount project brought together researchers from a variety of disciplines within social sciences. Our different languages and methodologies accounted for another undercurrent that readers may notice when moving around the Handbook: a cacophony (Hagen and Lorenzen in revision) evident not only within the cases but in the many meetings that brought us together to discuss our progress, challenges and how to move forward. In this sense we experienced a truly interdisciplinary research process, with its debates, agreements and frustrations. Above all, however, we tried to remain true to our initial willingness to open up and avoid falling into the trap of working in silos. Our reward was plunging into the richness and great diversity of social science research.

In conclusion, the process of producing this handbook has itself been an exercise in effective science communication. From defining its purpose and themes, to writing and editing its chapters, the work on the handbook has been every bit as dialogical and co-creative as other parts of the YouCount project, and has involved researchers and young people from different countries, disciplines and backgrounds. It is now time to publish and disseminate the handbook, in the hope that it proves useful to anyone and everyone interested in citizen social science and in creating a future shaped by more inclusive, participatory research. Together, let us propel positive social change beyond these pages and into the world.

FURTHER READING

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2 Youth Citizen Social Science - an Overview

Authors: Eglė Butkevičienė & David Borgström

In this first chapter, we offer a concise overview of citizen science as a research approach, explore the various roles citizens can play within citizen science projects, and elucidate the key characteristics of citizen social science.

What is Citizen Science?

Citizen science refers to a specific research approach through which scientists and nonscientists join together in a process of scientific research. In this way, citizen science emphasises the collaborative approach and involvement of people that usually do not have a formal scientific training, often referred to as citizen scientists, in the process of scientific research, such as data collection, data analysis, and sometimes even in research results dissemination activities.

Citizen science has been defined as: scientific activities in which non-professional scientists volunteer to participate in data collection, analysis and dissemination of a scientific project (Haklay, 2013); as scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions (Oxford English Dictionary, 2014); and as scientific work undertaken wholly or partially by members of the public, often in collaboration with or under the direction of professional scientists (Veeckman, 2019), among others (See further reading for other definitions).

The Characteristics of Citizen Science

Citizen science projects possess certain characteristics that can be used to understand their complexity and specifics. A straightforward way to grasp the core concept is to have a look at the European Citizen Science Association's (ECSA) 10 principles of citizen science (2015), which have been rearranged here into four overarching characteristics.

- Active Involvement of Citizens
    - *Principle 1:* Citizen science projects actively involve citizens in scientific endeavours that generate new knowledge or understanding. Citizens may act as contributors, collaborators, or as project leader and have a meaningful role in the project.
    - *Principle 4:* Citizen scientists may, if they wish, participate in multiple stages of the scientific process. This may include developing the research question, designing the method, gathering and analysing data, and communicating the results.

- Scientific Quality and Impact
  - *Principle 2*: Citizen science projects have a genuine science outcome. For example, answering a research question or informing conservation action, management decisions or environmental policy.
  - *Principle 6:* Citizen science is considered a research approach like any other, with limitations and biases that should be considered and controlled for. However unlike traditional research approaches, citizen science provides opportunity for greater public engagement and democratisation of science.
  - *Principle 9:* Citizen science programmes are evaluated for their scientific output, data quality, participant experience and wider societal or policy impact.

- Mutual Benefits for Scientists and Citizen Scientists
  - *Principle 3:* Both the professional scientists and the citizen scientists benefit from taking part. Benefits may include the publication of research outputs, learning opportunities, personal enjoyment, social benefits, satisfaction through contributing to scientific evidence e.g. to address local, national and international issues, and through that, the potential to influence policy.
  - *Principle 8:* Citizen scientists are acknowledged in project results and publications.

- Open Science Approach and Ethics
  - *Principle 5:* Citizen scientists receive feedback from the project. For example, how their data are being used and what the research, policy or societal outcomes are.
  - *Principle 7:* Citizen science project data and meta-data are made publicly available and where possible, results are published in an open access format. Data sharing may occur during or after the project, unless there are security or privacy concerns that prevent this.
  - *Principle 10:* The leaders of citizen science projects take into consideration legal and ethical issues surrounding copyright, intellectual property, data sharing agreements, confidentiality, attribution, and the environmental impact of any activities.

The Roles of Citizens in Citizen Science

Following ECSA's first principle, citizens may act as contributors, collaborators, or as project leaders, and these contributions may include developing the research question, designing the method, gathering and analysing data, and communicating the results. Also, it is very important to acknowledge that in citizen science collaboration between scientists and citizen scientists is based on a co-creation approach (see the section below on the co-creative approach and also Chapter 3), inclusivity, and transparency. As emphasised by Haklay et al. (2020), "[...] transparency regarding the different roles and expectations in the process is recommended, and participants should be made aware that they are contributing to research" (p.2).

The literature provides a number of different typologies referring to the roles, levels of involvement and types of contribution of citizen scientists in citizen science projects. Crowdsourcing, distributed intelligence, participatory science, extreme citizen science were identified by Haklay (2013), while Booney (2009) signalled contributory, collaborative, and co-created. Haklay et al. (2020, 2023) found more than 20 such typologies.

Most of the aforementioned typologies focus on when in the research process participants are involved, as well as their level of participation. The classifications can be understood as spectra, where, at one end, citizen scientists' are involved as monitors in data collection and in certain parts of data analysis, e.g the "Contributory" and "Crowdsourcing" level. At the other end, citizen scientists are involved in several or all phases of the research process, and can even initiate and carry out projects completely without the involvement of professional researchers.

It is important to underline that no classification or typology is without exceptions. There are always projects and initiatives that depart from accepted classifications. It is also important to emphasise that these classification attempts are descriptive, that is, they should not be understood as evaluative or that one form is better than the other. The right approach and degree of involvement of participants depends on a number of factors, including the research area, research questions, methodology, target group and implementation of results.

What is Citizen Social Science?

Citizen science projects are implemented across diverse fields including biodiversity, biology, geography, astronomy, ecology, climate science, humanities, and social sciences. In the realm of social sciences, these projects are often referred to as citizen *social* science.

Citizen Social Science refers to citizen science activities within the social sciences, or initiatives and projects focusing specifically on the social aspects of citizen science (Albert et al., 2021). Some of the differences between citizen science and citizen social science are listed below:

- *Differences in scope*: citizen science is a broader concept while citizen social science might be an integral part of citizen science.

- *Differences among disciplines:* Citizen social science is still an emerging concept, and the line between traditional science and citizen science in social sciences is more blurred compared to the natural sciences. Participatory approaches (such as participatory action research, ethnographic research, co-production, etc.) have been extensively used in social science research before the emergence of citizen social science as a concept, and have "a long legacy in the social sciences" (Albert et al., 2021, p. 120). Also, research found that citizen social science is underpinned by multiple disciplines (Tauginiene et al., 2020). Citizen social science is "practised as both an approach and a bridging concept between the natural and environmental sciences and the social sciences and the humanities" (Albert et al., 2021).

- *Differences in the object:* Citizen social science uses citizens gathering data about the social world they observe (Purdam, 2014), while the object of citizen science may involve many aspects.

- *Differences in social impact:* Citizen scientists involved in citizen science research are often viewed as policy passive objects, whereas citizen social science includes citizens in "transformatively changing institutionalised research and policy systems" (Kythreotis et al., 2019). The research results from citizen social science are much more likely to be used to develop policy recommendations and have a stronger social impact on society. By engaging the public in scientific social research, citizen social science aims to increase scientific knowledge and understanding while also fostering a sense of empowerment and community involvement.

- *Differences in methods:* Citizen social science is more often linked to the participatory approaches, especially participatory action research (Albert et al., 2021), compared to citizen science.

The YouCount project used a citizen science approach to enhance social inclusion of youth in different geographical regions, including western, central and eastern European countries. The project findings justify the assumption that social inclusion can be enhanced via citizen social science, resulting in more active youth participation in local activities, increased social capital, local connectedness to other citizens/residents, sense of belonging and embeddedness in the community.

FURTHER READING

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Citizen Social Science for Social inclusion

Authors: Fortuna Procentese & Flora Gatti

Social Inclusion – Understanding a Complex Concept

In both Europe and around the world, the growing risk of social exclusion among young people underscores the importance of identifying ways to create more inclusive and youth-friendly societies (Butkevičienė et al., 2021). In light of this, the YouCount project has adopted youth citizen social science as a methodological framework, and as previous chapters have discussed, this approach aims to not only make science more inclusive and youth-friendly, but also to foster social inclusion among youth in their local communities. This particular societal challenge with our specific research aims thus constitutes the ground that the YouCount House of Citizen Social Science stands on.

But what do we mean when we talk about "social inclusion"? In the language of YouCount, it means ensuring that all citizens have equal opportunities to access local resources and services, as well as actively participate in the economic, political, cultural, and social aspects of their communities. Hence, social inclusion is a complex process that unfolds through the interplay of economic, political, cultural, and relational dimensions. In this section we share what we learned about youth social inclusion and inclusive (citizen) science in the YouCount project.

Consistent with the social sciences literature, social inclusion in the YouCount project was defined as a dynamic and multidimensional process that encompasses opportunities and resources conducive to participatory processes, as well as the economic and political dimensions specific to a particular social context (Moyano et al., 2020; Yang et al., 2019). This interaction results in establishing a sense of belonging and community membership.

The local research teams in YouCount endeavoured to highlight the need for a careful approach to social inclusion, aimed at taking into account these complexities and the need for co-creation along with citizens throughout the project.

RESEARCHERS' PERSPECTIVE

"Social inclusion is about recognising not only the needs but also the unique characteristics and richness of the other, promoting mutuality and two-way benefits. To achieve this, it is important to co-design the services and activities aimed at supporting social inclusion processes."

The perspective expressed in this quote was central to the pathways we implemented within the YouCount project. Indeed, as a first step we identified the meanings of social inclusion in the established literature and compared them to the meanings given by the young co-researchers. What emerged from the words of the young citizen scientists involved allowed us to identify several critical issues for their social inclusion, mainly related to availability and quality of places, feelings of insecurity, stereotypes, and prejudices, but also difficulties due to economic issues, transport, or (lack of) opportunities for participation (Pataki et al., 2023).

Similarly, the young co-researchers shared with us the opportunities for inclusion they experienced, such as participating in shared activities (e.g., sports), social events (e.g., concerts), belonging to various social groups, and feeling welcomed in their community. However, they often emphasised that intrinsic factors (e.g., curiosity, desire to learn, expanding social circles) and the efforts of local associations also played significant roles in their engagement with these opportunities (D.3.2: Pataki et al., 2023B). The young citizen scientists in the YouCount research teams provided definitions of social inclusion and its core issues across countries and project stages.

YOUTH PERSPECTIVES

"My dream city is a place where everyone feels friendly and talks with each other. Today, our city is divided into different socioeconomic classes, which don't meet or talk. That's a shame, because we can learn a lot if we mix and expand our horizons. If we talk with each other, we will all feel safer where we live."
– Young person from YouCount Denmark

"Belonging means collectiveness, responsiveness, and emotions, like the feeling of safety that comes through affirming gestures or the feeling of joy and pleasure that comes through participating in joint activities. These feelings seem to be embodied and connected to other people."
– Young person from YouCount Norway

Based on this work, we identified reciprocity and communication as two key characteristics of social inclusion processes according to the young people involved (Pataki et al., 2023): you can only feel included in a community – or social group – if (a) you feel that the group meets your needs as you meet its, and (b) you feel the group represents a safe place where you can express your ideas and perspectives even though they are not in line with those of the majority.

Youths consistently identified several factors that could either foster or undermine such feelings (Pataki et al., 2023). Firstly, individuals need to feel that the community values everyone's characteristics and contributions equally. This requires community members to maintain an open-minded attitude, show empathy towards others, and trust them even when they hold different ideas, perspectives, or beliefs. Additionally, responsibilities for common goods should be shared by all community members, regardless of interpersonal differences. This enables everyone to contribute to and promote changes that benefit the entire community. Overall, these aspects can empower young people to address contextual threats to social inclusion in their communities, including communication challenges, rights issues, policy concerns, bureaucratic obstacles, and the importance of involving themselves and others in shared activities. Such involvement strengthens trust, security, and cohesion within their communities (Pataki et al., 2023)."

A Citizen Social Science Approach to Making Science More Inclusive

As discussed in the previous chapter, Citizen Social Science represents a methodological framework aimed at promoting collaborative and participatory ways of doing social science research together with citizens. Two elements are critical and give relevance to citizen social science as an inclusive practice: the first concerns the concept of science communication, in which formal scientific knowledge is disseminated beyond the scientific community; the second concerns co-creation, a collaborative process involving citizens and professional researchers, which allows for two-way exchanges of tools and knowledge, useful to finding creative scientific solutions to the social challenges identified by citizens in their local contexts..

Indeed, in order to create an environment of true collaboration and participation, having the commitment of all community members is necessary to ensure that different perspectives and needs are properly considered and respected. Dialogue, supporting the empowerment of disadvantaged communities and groups, adopting concrete tools to promote access to available opportunities and resources, promoting positive relationships, maximising diversity, and creating shared goals are some of the strategies identified for the achievement of this important goal (Juvonen et al., 2019; Littman, 2021).

By adopting these principles within the YouCount case studies, we fostered collaboration and co-construction of knowledge and processes aimed at promoting social inclusion in local contexts by engaging young citizens in local research teams (Ridley et al., 2023). We began by forming and training small groups of young citizen scientists, integrating them into local research teams. This gradual approach ensured their inclusion in scientific, research, and intervention practices without overwhelming them. Specifically, we provided training to the young participants in idea exploration tools and methodologies such as conducting interviews and moderating discussion groups. Our objective was to identify factors facilitating and hindering social inclusion processes before and during the development of the local case studies and living lab activities. Subsequently, the participatory work conducted in the local contexts involved groups of young citizen scientists in collaboration with, and under the guidance of, professional researchers.

YOUTH PERSPECTIVES

I would like to see more citizen social science projects involving young people, because there are many things to improve, and we can contribute.
– Young person from YouCount Spain

At the end of the project, the young people told us how taking part in project activities as young citizen scientists allowed them to feel more included in their community (see more on this in Chapter 6 on evaluation). They also reported reaching higher competence when working within a psychosocial perspective, and they perceived themselves as more empowered in thinking, proposing and promoting changes in their community. The young citizen scientists who participated in the research teams in YouCount were enthusiastic about their experience with citizen social science and about the opportunities it offered them to engage in promoting changes in their communities.

Local research teams also noted significant changes in the attitudes of the young citizen scientists towards their communities and the stakeholders within them.

In this regard, such experiences can serve as valuable resources to support processes of socio-cultural inclusion and individual as well as collective empowerment, fostering social dynamics that are accepted by and integrated into local communities (Giarè et al., 2020; Juvonen et al., 2019)."

RESEARCHERS' PERSPECTIVE

Our young citizen scientists have grown more confident, both within the group and in approaching and discussing findings with stakeholders. In turn, they are motivated to see the results of their work achieved through action and have certainly become active citizens. The conversations taking place within the Living Labs were not only young person-focused but young person-led.
– Researcher from YouCount UK

The young citizen social scientists in the Norwegian case team collaborated with local stakeholders in a living lab dedicated to idea development on social innovation and policy change for young people on a national level. Photo: Idfluene

A Citizen Social Science Approach to Working on Local Social Inclusion

A local community is not merely a physical space but also a relational entity to which citizens should feel connected and belong (Sarason, 1974). It is a place where individuals should have opportunities for social contacts and interactions with diverse people (Ife & Smith, 1995). Therefore, communities serve as important arenas for daily experiences of social inclusion – or exclusion.

Based on this, the participatory work we carried out in the local contexts was aimed at promoting social inclusion processes paying attention to different target groups of marginalised youths. Below we describe the key stages that influenced the development of local case activities and the vision of social inclusion described above. Note the differences that nevertheless existed in the focus and development of the different local cases (see Pataki et al., 2023).

In the first phase of the project, we brought together groups of young citizens to participate in the local research teams. We then used group discussions to foster mutual understanding and, most importantly, to understand the young citizens' perceptions of social inclusion. Similarly, during the initial stages of developing the local case activities, we collaborated with young citizens from the broader local community (referred to as 'young citizen scientists from the community') to explore their experiences and understandings of social inclusion within their specific social contexts. These reflexive activities are part of the 'ground floor' of the House of Citizen Social Science framework.

Becoming aware of one's own representations and experiences on the topic to be addressed, as well as those shared within one's social context of belonging, constitutes a delicate and significant phase in the work of psychosocial sciences. This awareness is crucial as the themes and aims under consideration are often embedded in the relational processes that characterize local communities. Knowledge of these representations and experiences, along with the opportunity to discuss the meanings of social inclusion, serves as the first step in establishing a trustworthy relationship between researchers and young citizen scientists.

Based on what emerged, we employed various participatory methodologies to encourage active involvement, facilitate opportunities for interaction, and promote empowerment processes among young people within their communities. We identified key stakeholders in the local communities involved in social inclusion processes and invited them to participate in Living Lab meetings alongside young citizens. Through their perspectives and experiences, we delved deeper into the emerging needs of the local communities, the meanings attributed to social inclusion by young people, the concrete dimensions that could enhance inclusive processes, and the promotion of opportunities contributing to their advancement. Collaborating with stakeholders, we identified future project paths to be implemented collaboratively, ensuring the active involvement of young citizens. Central to our approach was empowering young people to actively participate in processes aimed at fostering various opportunities for their social inclusion in society.

The Co-Creative Approach

Authors: Aina Landsverk Hagen, Sara Berge Lorenzen, Julie Ridley & Maria Turda

There are a couple of essential questions to ask and some choices to make, before embarking on a citizen social science journey with a co-creative approach, together with youth. Co-creation is complex to define and multilayered in practice, and reaches far beyond just measuring levels of engagement in scientific activity (D.3.2: Ridley et al., 2023:54). Co-creation can be defined as comprehensive collaboration between stakeholders from inception, through to completion of a research and innovation process (Wiarda et al, 2023), or as projects "designed by scientists and members of the public working together and for which at least some of the public participants are actively involved in most or all steps of the scientific process" (Bonney et al. 2009:11). Co-creation in citizen science is all about being flexible and adaptive, and facilitating the infrastructure to support communication, tools and collaborative decision-making (Senabre Hidalgo et al. 2021).

If you, like us, want to make the research process socially inclusive, and you have heard that co-creation is the way to go, what do you do? What is co-creation in practice – and how will you know when you have achieved it? This we will explore below, through examples, reflections and how to-tips from the perspectives of youth, community-level stakeholders, and researchers.

The outcome of a collaborative, co-created process is (supposed to be) unknown, in the dark: A co-creative process cannot by definition be planned in detail by the professional researchers. Traditional hierarchies in research (and society) are intentionally jolted. This poses some challenges and dilemmas, when it comes to emotional and relational involvement, that are not always anticipated or articulated before the process starts. This intentional "productive uncertainty"[1] is in conflict with most application requirements, where the level of detail in planning is a measure of success for getting funding. It is risky business to adopt a co-creative approach.

[1] *Thanks to Professor Dick Kasperowski, Gothenburg University, for this insightful description of how our co-creative process with youth citizen scientists unfold in real time.*

So, even more importantly, it is crucial to ask, *why* do you want to co-create a citizen social science project? In general, citizen science projects report more limited involvement of citizens than the ambitions of democratising society through joint knowledge production aims. We also see few science projects involving youth, thus a large part of the global population is disattached from institutional knowledge production (D.3.2: Ridley et al., 2023). These two factors were the basis of our joint motivation for involving youth – and stakeholders – in a co-creative process of exploring how citizen social science could help us better understand social inclusion of youth in Europe.

Involvement of Youth

Social sciences have a long tradition for including youth through participatory and collaborative practices in their research, for example in Youth Participatory Action Research (YPAR) (Albert et al., 2021), and more experimental ethnographic research (Tolstad et al., 2017). These conceptual frameworks with their emphasis on strategies for change have been important inspiration for the emergence of youth citizen social science (Canto-Farachala & Norvoll, 2023).

Talking about the need to involve youth in decision-making and knowledge-producing processes in society is trendy, but actually *doing it* is leading us to more murky ground. Why involve young people in research? What's in it for the youth, and what's in it for the researchers? What unique contributions

RESEARCHERS' PERSPECTIVE

We are a diverse group of researchers when it comes to gender, age, and national and disciplinary background. But we are all middle class white Western Europeans and this has made us particularly aware of the power imbalances between us and the youth, but also of the potential for genuine, new data and research questions that we wouldn't have produced ourselves. – Researcher from YouCount Norway

can youth make to research? The researchers in YouCount voiced a variety of reasons, among them the homogeneity of scientific communities in the Nordic countries.

This homogeneity was seen as particularly troubling when the topic of investigation was social inclusion of youth, many of them of immigrant or minority background. To overcome these challenges, we developed strategies and plans for co-creation, plans that were always subject to adjustments, alterations and sometimes even abortion, after learning through failing.

New Approaches, New Roles for Everyone

In co-creative citizen social science researchers are adding on to the role of educators (see Chapter 3 on training), with the (for many) new role of also being facilitators of collaborative activities inspired by design thinking, collaborative project management, and other learning by doing approaches (Senabre Hidalgo et al., 2021). When combining these approaches with existing methodologies and practices from a range of social sciences, researchers become interdisciplinary entrepreneurs. This we see have effects on the potential for social innovations and policy change, also within the science community (see Chapters 6 and Chapter 7 on evaluation and impact).

Our aim in YouCount was to conduct research with and on young people, *and* co-create research and social innovations based on the results. All the cases aimed for participatory, creative and qualitative designs, as they judged these elements to be crucial in opening up and fully engaging youth in exploratory research. The importance of 1) creating the right environment, 2) getting the relationships right, and 3) establishing co-creational dynamics for citizen social science, cannot be understated (D.2.3: Ridley et al., 2023).

In Austria, the case group set out to create "co-creational dynamics" through starting discussions about adequate wordings and framings for certain scientific terms and inquiries. This reportedly gave the involved youth some control in determining the research topic and the research approach (D.2.3: Ridley et al., 2023: 56).

Generally, the case teams opened up for co-creative deliberation before every new step in the research process. This resulted in co-created questionnaires for data collection, co-created approaches to analysis of the material, and also co-created formats for dissemination of findings.

In Norway the team took the time to translate research findings on how young people in the local neighbourhood felt socially included through getting access to meaningful jobs, with the aim of showcasing these findings in physical exhibition rooms at a local museum. To display the translations, the young citizen scientists filled old school boxes with visual elements. These were meant to explain to visitors both the research process and the results. This co-created dissemination was later reassembled by the youth to fit new "exhibition" spaces at the university and the conference space in Brussels.

Another innovative co-created dissemination output was a sci-fi journalistic video narrative developed by the Hungary B case (see D3.2: Pataki et al. 2023B). Implementing co-creation in the research process often requires researchers to dig deep in their own toolboxes in this way:

RESEARCHERS' PERSPECTIVE

To find research questions, we followed a zooming in approach. This strategy tries to avoid imbuing research questions by the researcher, and rather develop an "aesthetic space", a concept that is borrowed from participatory theatre and arts-based research. The aim is to develop a safe forum for generating creative art works based on the personal experiences of the participants. Using this strategy allowed our young co-researchers to identify what issues of interest emerged. – Researcher from YouCount Hungary

Other case teams focused on how they spent time listening to the responses and ideas from the young people they recruited as citizen scientists and redirected the discussions if needed, to uphold the scientific focus and quality.

The UK team reflected in hindsight on how "one early comment in meeting notes was that we never followed the agenda set out for the workshops, instead we gave room for the themes that emerged during the discussions" (D.2.3: Ridley et al., 2023: 57). In this way they as researchers felt that they gained a better understanding of reality as experienced by the young co-researchers. This methodological approach to co-development and participatory research laid the foundations for a mutual understanding of which kinds of interventions, such as living labs, dialogue fora and social innovations, could be created. (D.2.3: Ridley et al., 2023)

How Do You Do it? The Co-Creation Journey when Involving Youth

1. Map out the research group's intrinsic motivation for adopting a co-creation approach
2. Locate whatever tools, skills, competencies, resources and materials you have available to support co-creation activities
3. Involve youth in the planning of co-creation, *if* you have the resources to support and follow up their initiatives
4. Develop strategies for collectively encountering dilemmas and difficulties on the fly
5. Decide on where and when in the process you will apply co-creation - and at what costs
6. Listen to what the youth's needs and preferences are throughout the process
7. Enjoy the ride, you never know where you will end up!

The Effects of a Co-Creative Approach for Youth

So, what is in it for the participating youth? In health-related and environmental science, fully co-created citizen science projects are still rare (Senabre Hidalgo et al., 2021). The majority of citizen science projects rely on participation only for the collection, and sometimes the analysis, of large-scale observations (Kullenberg & Kasperowski, 2016). Thus, we do not have overwhelming amounts of data on what the benefits for youth are. Luckily, we made some important discoveries in the YouCount project, where the cases strived for being fully co-creative, throughout the whole research process.

YOUTH PERSPECTIVES

It's really fun to represent something you are a part of – something you have worked for. – Young person from YouCount Norway

I was overwhelmed with pride when we were going to showcase the exhibition during our workshop. – Young person from YouCount UK

According to researchers in YouCount, the youth involved in the research gained new opportunities for participating in discussions and working spaces where they usually do not have access (D.4.4: Lorenz et al., 2023: 54). Thus a strengthening of their social networks was one of the main gains reported.

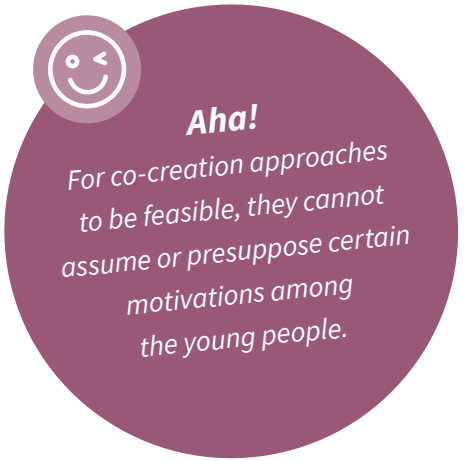
Youth that participated in YouCount reported that, after a while, they started to self-identify being in a mediating role "as something between a citizen and a scientist"

(D.4.1: Saumer et al., 2023: 27). This hybrid, mediating role can be explained by the multi-layered design of the project, resulting in the involved youth feeling like both "data" and "data gatherers"; simultaneously co-researchers and research objects. This obviously complicates things. Yet, a shared sense of pride and achievement gained through involvement in YouCount was something that resonated throughout the cases. The youth in the Norwegian case for example, expressed that getting to represent the research project that they had been part of for a long time, generated a strong sense of pride. As a part of the exhibition opening where research results were presented to guests and stakeholders, they all wore white customised hoodies with a self-made YouCount logo and a visualisation of the process as a "subway map" on their back. They clearly found joy in being associated with the YouCount project and took pride in their contribution.

Co-creative research also requires adequate communication and interaction channels, from project coordination to progressive validation of results (Sanders & Stappers, 2014). One challenge is that the ideal of co-creation can lead to time-squandering that inhibits motivation, especially in the beginning of processes, before trust, confidence in the mission or clear communication structures are established. When we co-created the YouCount app, it (for various reasons) took too long to materialise and interest dropped (see more on this in Chapter 3 on using digital tools). It thus became of less use as a data collecting agent, than originally planned for. The co-designed digital tool became for many an obstacle in the planned, smooth data collection procedures.

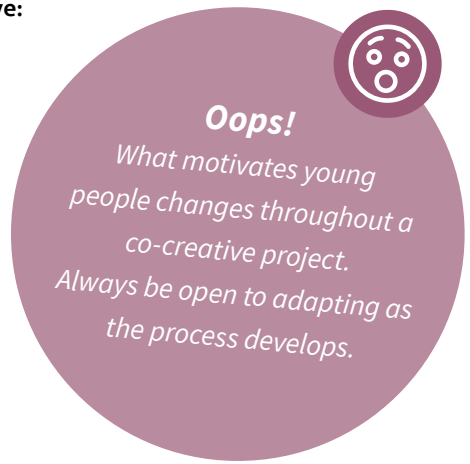
Co-creation From the Youth Perspective: Overwhelmed and Overburdened

An often-mentioned downside of co-creation efforts is overburdening on both sides. Young citizen scientists struggle with time constraints due to the delicate balance of project engagement, free time, school/university/work, social relations, and personal relations. One of the self-reports from the researchers states that "The young citizen scientists want to be involved more, but we sometimes have time struggles because they are all working/studying full time. It will be quite a challenge to increase their involvement without compromising their free time too much" (D.4.1: Saumer et al., 2023:31).



We therefore advise that co-creative designs should be carefully assessed, as many of the youth in our cases reported being overwhelmed when they had to contribute to every single research step. We conclude that co-creation "should be used as a poignant tool when useful, but not be expected for every minor detail" (D.4.1: Saumer et al., 2023:31).

But then again, useful for whom? To find out, we realised that we needed to constantly confer with our participating youth, to check that we had not misunderstood or assumed what their motivations and experienced rewards for being part of this ambitious set-up were. This misalignment in motivational perceptions, contrasts theoretical perspectives that emphasise civic participation and scientific insights as rewards, with the views of the young citizen scientists. Such theoretical frameworks are often based on natural science projects with adults. As we will see below (see Chapter 3 on carrying out a citizen social science project) initial engagement for the youth leaned towards materialistic incentives, then further on in the process it shifted to a stronger social component, "including relationship building and rewards to prevent dropouts" (D.4.1: Saumer et al., 2023:34).



To summarise, or maybe it is the final insight worth mentioning, we realised as we got more and more experienced in co-creation, that it was not necessary to always aim for the clouds and beyond. As the YouCount evaluation team concluded; "The recognition that strategic planning should anticipate situations where no co-creation is beneficial is acknowledged" (D.4.1: Saumer et al., 2023:35).

Key Takeaways

- **We are in this together, start co-creation in preparation and planning.**
  - The common denominator here is time. Taking time. Time to re-invent methods if needed, to test out activities that promote collective reflection, to secure group formation, and to shift focus if the groups collectively decided this was needed.
- **Strive to "get" the young people's language.**
  - Academic language is not always useful to get co-creation enthusiasm going. Listen attentively and benefit from exploring the visual language of artists.
- **Introduce "equalisers" – attitude is everything.**
  - Our physical and mental world is full of hierarchies and categorizations. Use ice-breakers, check ins, play and games to reduce the perceived distance between researchers and youth.
- **Disagreement is welcomed.**
  - Co-creation is all about being flexible and open to changing your mind. Misunderstandings, disagreements and conflicts can be productive, as they force further exploration.
- **Take time to onboard "drop-in" youth.**
  - Participation in youth citizen social science is like a dance, where drop-ins are as common as drop-outs. People come and go, and you need to plan for these changes.

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Working with Local Communities and Stakeholders

Another important research tradition that influences citizen social science is community work, where collaboration between society and science is seen as a key part of the co-creation (see previous sections in this chapter). Building a research community is not just about creating a small (or large) team of researchers and co-researchers. It is also about identifying, locating and engaging people and organisations that care about the issues you research. Yet, in a co-creative research project, you could easily think that it is messy enough with the citizen scientists. Why involve more people, like local communities and a variety of stakeholders in co-creative processes? What can they contribute to the research process, and what do they gain from participating?

We quickly discovered that for the young citizen scientists in YouCount, the social gains of involving stakeholders and community actors included increased opportunities to interact with stakeholders and for being heard, and far outweighed any discomfort or stress we as researchers experienced when striving to organise living labs and workshops (D.4.4: Lorenz et al., 2023:54). From the researcher perspective, including other youths and adults from the local neighbourhood in the co-creation activities, widens the scope of your findings' social impact.

Policy change is one of the most frequently expressed desires for long-term outcomes of community-based research projects. We realised that the stakeholders we invited to participate, were not just chosen because the researchers knew about them, or they were known to the general public. Also actors who were (only) known to the youths themselves were identified and invited to join in the sessions where research design and preliminary findings were presented and discussed. We thus discovered that the combination of young citizen scientists and stakeholders, is the gold of a co-creative approach.

Due to the open-ended design of the local living labs, the stakeholders also had time to engage each other in conversation – and in some cases started to collaborate outside of the project, like in the Norwegian case.

"We have engaged many stakeholders in the project, and they have had the opportunity to talk and collaborate with each other, arriving at new ideas and solutions to societal problems".

The co-creative approach resulted in a variety of ways to engage people and organisations in the local communities that could possibly have a desire to gain knowledge, develop social innovations or influence policy change on the topic of youth inclusion in Europe. Common to all the cases, were the ongoing discussions with the young people on what stakeholders to involve, how to involve them, how to present the findings from data collection in ways that would create enthusiasm among the living lab participants, and finally, how the stakeholders on both the regional and national level could help communicate the results to a wider audience. Stakeholders involved in YouCount demonstrated an increased appreciation for the value of youth perspectives and insights.

The youth involved in YouCount reported a desire for creating positive change even after the project ended – and the researchers found that stakeholder involvement was essential for advancing the project outcomes. (D.4.1: Saumer et al., 2023:31). But what was the driving factor behind the youths' belief that the stakeholders would fight for their cause in strengthening social inclusion of young people in Europe?

STAKEHOLDER'S PERSPECTIVE

I would like to emphasise how valuable your (young people's) testimony has been. We spend time in our offices, preparing decrees, and signing documents. This really helps us to put faces and names to, what are so often, generalities. – Decision makers at a YouCount event

Co-Creating with Stakeholders: The Equaliser Effect

Transdisciplinarity, the collaboration between researchers in academia and actors from civil society and other non-academic actors, is recognising the gap that we often find between the perceived problem in science and practice (Hoffmann-Riem et al., 2008). Also, when aiming to produce knowledge for "the common good", one needs to be receptive to what that "common" is, or can be.

YOUTH PERSPECTIVES

I feel as if the project has given young people more of a voice. Grownups in positions of power tend not to listen to young people. They will now listen a bit more and take the feedback a bit more seriously than just like, "ohh, they're younger than us, don't know what they're talking about". – Young person in YouCount UK

The connecting activities in YouCount, between the youth and the local stakeholders, were deemed innovative in themselves, by all parties, and seen as one of the unique contributions of the project. Towards the end of the project period, when the living lab format transitioned into what we called "national workshops" with stakeholders on a national level, a collective perception among both youth and researchers emerged: The most meaningful impact became *the project itself*, and the learning opportunities it facilitated for all parties, including the stakeholders.

So, how do you foster a learning environment where all parties, regardless of age, gender, language and science literacy, educational and demographic background, feel that they contribute on an equal (enough) level? Through continuous exploration, evidential failures and brief moments of success, the cases developed "a range of visual, sensory, tactile, and explorative methods for doing empirical research in the local neighbourhood" (D.2.3: Ridley et al., 2023:41). This co-creative approach to doing transdisciplinary research, included both the young citizen scientists and local stakeholders, and a combination of analogue and digital tools and materials. The locations for data collection, but most importantly data crunching and grinding, became integral for fostering this equaliser effect: Non-hierarchical modes of collaborating across differences (Tolstad et al., 2017). Also, the transformative effect of a round table is amazing!

The importance of equalising relations also extends into the digital sphere. A stakeholder, who had engaged our young citizen scientists in a series of webinars, switched to a co-creation approach after experiencing the power of involving the young people right from the start – in the planning phase.. She gave them power to make decisions and meaningfully shape the format and topics of the webinar, with much more engaging results (D.1.5: Murray et al., 2023:11).

How the Equaliser Effect is Created

1. Be aware of the physical layout of the rooms you invite stakeholders and youth to – do they uphold, enforce or reduce power differences?
2. Remove all physical or material barriers to level out inequality, including change of locality if needed (outdoors instead of auditoriums etc.).
3. Use name tags, check in/out activities and other means to make all participants feel safe and confident (enough).
4. Translate and use a simple and accessible language, including for scientific terms.
5. Never presume that power differences are neutralised. Most likely, you as a researcher simply do not see or feel them, because you are in a position of power.

FURTHER READING

Land-Zandstra, A., Agnello, G., Gültekin, Y.S. (2021). Participants in Citizen Science. In: Vohland, K., et al. ***The Science of Citizen Science***. Springer, Cham. https://doi.org/10.1007/978-3-030-58278-4_13

Aha!

Living Labs, workshops and exhibitions can function as hubs connecting researchers, young people and stakeholders, and facilitating new and exciting interactions and experience sharing.

The Researchers' Role in a Co-Created Citizen Social Science Project

You can co-create all aspects of a research process, from collectively deciding on the research focus, questions, methods, to the analysis and dissemination approaches, together with the citizen participants. But as professional researchers know, research is so much more than just the strictly scientific activities we do. This is reflected in us attributing the whole ground floor of the House of Citizen Social Science to activities that build relationships and confidence.

Research processes are all about reflection, curiosity, trust and openness to the new, but also about power differences, hierarchies and assumptions about each other's disciplines, roles and level or type of knowledge. These latter factors are what we aim to reduce, in order to get to the interesting part: new knowledge that provides insights into how the world is ticking, and how we can play a part in improving conditions for all humans and non-humans.

RESEARCHERS' PERSPECTIVE

In a co-creative process, the researcher is not so much an expert as a facilitator for network relations between human and non-human actors, "staging" spaces for negotiating concerns. – Researcher from YouCount Denmark

Challenges and Benefits of Co-Creation for Researchers

Using energy and resources to facilitate horizontal relations and blurring of distinctions between actors in parts of a research process, does not make sense unless you believe the science would benefit from it, somehow. And it necessitates a willingness to evolve and change as a practising researcher.

Involving young people and stakeholders in co-creation processes requires a diversity of skills among the researchers, and therefore larger teams seem to benefit from their inherent variety of personal and professional competences and strengths. The backside here, is of course the resources needed to manage larger teams, which may swallow the benefits from co-creation.

Co-creation in citizen social science projects is both materially and cognitively resource demanding: We have first-hand experience of the underestimated workload for researchers (D.4.1: Saumer et al., 2023:30). Case research teams in YouCount made various attempts to involve the young citizen scientists in the data analysis process, showing both effort and care.

RESEARCHERS' PERSPECTIVE

Research is done at both a "backstage" meta-level and at a more practical "front stage" level. In YouCount, in order to avoid overwhelming the youth, a lot of the backstage work was done by us academic researchers, and our young co-researchers were involved in all the front stage activities that they found interesting and meaningful. – Researcher from YouCount Denmark

YOUTH PERSPECTIVE

I feel that the adult researchers care a lot about what we think. When we had the exhibition, the researcher sent me messages asking if I was happy with everything and how we felt about the exhibition. – Young person in YouCount Norway

Aha!

When working on dissemination and communication together with young people, try different ways of visualising your findings! Posters are fun and creative ways of communicating new knowledge.

Oops!

In YouCount, our young co-researchers usually did not answer emails. They have different communication habits, and as researchers we needed to adapt. Instead of emailing, try using group chats, or even better, ask the young people what channels they prefer to communicate through!

Another challenge is connected to the factor that separates science from other investigative endeavours like journalism or service design: the use and creation of theory. In YouCount, the interviews showed consistently that theoretical training of the young citizen scientists is really hard to accomplish, while methodological "hands-on" practical training was met with more enthusiasm from the youth (D.4.1: Saumer et al., 2023:27). This you can read more about in chapter 3 on how to carry out a citizen social science project

FURTHER READING

Paleco, C., García Peter, S., Salas Seoane, N., Kaufmann, J., Argyri, P. (2021). Inclusiveness and Diversity in Citizen Science. In: Vohland, K., et al. *The Science of Citizen Science*. Springer, Cham. https://doi.org/10.1007/978-3-030-58278-4_14

Co-Creation in Short – The Essential Aspects

Author: Barbara Mihók

> ***"When doing research with young people, I think it makes sense to involve us early on in the process. We are the ones who know best what will work for us."***
>
> ***– Young co-researcher in the YouCount project***

While there is no one-fits-all recipe for co-creation, we will summarise by sharing what we believe are essential aspects of how to build up a safe, relational and dynamic space where co-creation is supported and fostered. Co-creation is a complex and multi-layered issue, where preparation is of key importance. If you are committed to co-creation, be aware that you will need a lot of time, flexibility and self-reflection in order to provide the appropriate space for your research community to be able to exchange ideas, transfer knowledge and create new and common meanings. It might not be easy but it will definitely be worth it!

Knowledge acquired from the co-creation process itself is a huge outcome - don't forget to celebrate the learning coming out from these exercises! You can only learn about co-creation by doing it, and by doing it you can learn about a lot of things you've never expected! Be open and curious as creation is an organic process, and when you add "co-" to it, it really becomes like a dance. Below we will explore the essential aspects; The importance of preparation, creating the right environment, building relationships and letting it flow.

Preparation Is Key

When thinking of the pillars of co-creation, we should highlight the importance of preparation. Well before the actual project begins and the objectives and purposes are identified, we have to carefully think about how we build up group cohesion and trust; how we ensure socialising incentives, how continuity is guaranteed; how to provide safe space among others. Preparation in this sense is everything that is required to launch and keep on going with the project.

Co-creation needs to start from the very beginning: in setting up the preparation and creating the right 'conditions' (in terms of the environment and the relationships) to connect are essentially important. Sometimes we have to be less ambitious and might not want to jump right into a co-creative process but start from a "contributing" type of citizen science. Finding the appropriate research methods is only the last step which should be preceded by much preparation and common language establishment.

Creating the Right Environment

What do we mean by the right environment? It means an inviting, safe and friendly set-up, where questions, mistakes, ideas, criticism and praise are all welcome and communication is clear. Creativity can flourish only in spaces where people feel safe to explore!

Oops!

Be careful not to jump into the co-creation process too quickly, as this can overwhelm the young co-researchers. Start easy and give everyone time to settle in, before gradually increasing the intensity of the collaboration.

Finding the right space is essential: choose spots where young people feel safe and secure to engage in the topics/activities! *Finding the right time* is also a crucial step: choose adequate plots for meetings taking into account the young people's other work or school commitments!

Getting the common and adapted language among the participants is the zero step towards co-creation. What do we mean by "collaboration", "data " or even "science "? We have to share a common understanding in order to be able to immerse ourselves in a joint inquiry. We also have to adapt language to be relevant and inclusive to young people and de-jargonaise some of the research heavy terminology. This is for inclusivity and 'equalising' language. For instance, instead of referring to *'research questions'* the term *'secret questions'* might be used which holds a greater appeal to young people (see Chapter 3 for more on this strategy).

Digital world is an everyday life-space for the youth: if you are not familiar with social media or the online realms, get yourself educated! Generation gap exists, even between different age cohorts of youths, in terms of social media use, digital competency and socialising. We can learn from the youth while connecting with them so much, especially in their ways of connecting.

Building Relationships

Setting the safe space is built upon forging good and balanced relationships in the research group. *The attitude of the academic researcher* is a determining criterion in co-creation. In addition to being curious, open-minded and committed to balancing power-dynamics, flexibility and being focussed at the same time is a necessary skill for successful co-creation. Since co-creation can be regarded as a function of a relational context (between different actors), the researcher's skill in forging relationships is a key.

How can we foster relationships? For instance, we can ensure that we provide *enough time* for getting to know each other. *Sharing food* is a constructive way to foster this, as well as *regular ice breaker activities* to establish a positive and inclusive atmosphere for all the participants.

Let it Flow: Co-Creative Dynamics

The actual co-creation of research objectives and purposes will follow its own rhythm - let it flow! Each research process and community has its own rhythm and pace emerging along the way. Some projects might start from a structured, predetermined, solid topic and diverge, while others might begin with exploring everyday experiences and narrow them down to specific research foci. The process can slow down or accelerate depending on the actual phase of the collaboration. It can become structured and then un-structured along the iterative co-creation process. Preparation, action and reflection can take its own time and maintaining flexibility along the way is essential.

Aha!

Adapting your language and making it more accessible is difficult, especially when discussing research methods and data collection. But such adaptations are incredibly important to create a youth-friendly, inclusive and engaging environment for co-creation. So ditch the lingo!

Key Takeaways

- **Make time for discussions on diversity and inclusion.**
  - Meta-reflection on topics that the youth care about, is generally welcomed and can be fruitful venues for exploring new ideas, thoughts and experiences.
  - Give a lot of time to preparation – even more than you have initially planned.
- **Multitasking and multi juggling.**
  - The researcher assumes a broad range of roles, including being a facilitator and youth worker, with often conflicting demands of where to put the energy.
  - Be familiar with the digital world and especially social media.
  - Set the right scene for co-creation with appropriate schedules and spaces.
- **Play off different people's strengths.**
  - Take time to tease out what every individuals' strength is in the group, young and adults alike. We all have complementary super-skills, often they are hidden.
  - Invest in building relationships.
- **Stage and facilitate.**
  - Be aware of the backstage and frontstage arenas for all parties involved, youth, researchers and stakeholders. Make sure to provide backstage opportunities for facilitating researchers also.
  - Let it flow but keep it on track!
  - Stay flexible and focussed, curious and self-reflective at the same time.

In person meetings where researchers and young researchers could work together were important milestones in our project. Photo by Nagore Valle.

3 Carrying out a Youth Citizen Social Science Project

Okay, by now most of you have familiarised yourself with citizen social science and you have reflected on how citizen science can help make science and society more inclusive and participatory. You have read about the co-creative approach, and the unique benefits and challenges of working with young people and local stakeholders and communities. You are probably eager to learn how all of this is done in practice. Sorry to disappoint, but this chapter will not answer that question. At least not in a straightforward way.

We will however share some important learnings from the YouCount project, and by doing this, hopefully provide you with some valuable insights into what it is like to actually carry out a youth citizen social science project. We will discuss how to make informed and creative methodology choices, how to involve young people in training, data collection and analysis in a real and substantive way, and underline the importance of thorough documentation. The aim of this chapter is not so much to provide a straightforward practical guide, but rather to share insights and reflect on our successes and pitfalls along the way.

Working with Young People

Authors: Aina Landsverk Hagen, Sara Berge Lorenzen, Cathrine Skovbo Winther, Julie Ridley & Maria Turda

So, now you have decided it is worthwhile engaging in co-creative citizen science with young people in your local area. Good for you – and for the young people you will engage.

In our House of Citizen Social Science, this part of the process connects the ground, the context you are in, and the ground floor/basement of the house. You need to find ways to recruit young people, and you need to plan for and think about how to preferably retain them over a period of time. This chapter will give you some structure and advise in the going-abouts on this, and also discuss what kinds of incentives are useful to test out within a citizen social science project.

Drawing on our experiences facilitating various co-creation processes involving adults and youth, we see one fundamental element for establishing a productive and creative atmosphere where everyone feels encouraged to openly contribute their ideas and thoughts: Creating safe and fun spaces. But before you figure out how to make that happen, you need to think about and check your resources. Maybe you already have a fairly well established network that you can build on, when recruiting young participants?

Recruitment

It's important to recognize that youth are not a homogeneous group; therefore, the recruitment strategy should be tailored to the local context, the target demographic, and the project's specific topic. In the YouCount project, all ten case studies have employed varied recruitment strategies. Some have gone through existing groups and platforms, such as youth councils and organisations, to engage participants. Others have formed new youth groups within the project itself. Additionally, some have actively involved local stakeholders to identify young people who might have a special interest in the research topic or are particularly open to new experiences. Let's start with the basics, and presume you are venturing into research in a whole new context and environment. What do you do?

Get to Know the Field and Establish Networks

A crucial aspect of recruitment is to get to know the field and establish networks. Visiting schools, youth clubs, and other venues frequented by young people to discuss their concerns, what motivates and demotivates them, and potential recruitment strategies is particularly important, especially if the local context is new to the researchers. Being visible to youth in such arenas is also a way to inform about your project idea. Additionally, identifying stakeholders who work with youth in the community and can assist with recruitment is a fruitful strategy. The Danish team in YouCount carried out several field visits to local schools and various events at the beginning of the recruitment process to actively engage with youth. In Norway, the research group collaborated with a neighbourhood association to investigate whether recruitment strategies could be co-created with local youth. This led to a network-based recruitment process, where the co-researchers were linked through friendships or family connections.

In Hungary, one of the research teams sent an invitation to the registered hard of hearing students through the University Student Counseling Centre, as well as distributing a Google questionnaire, where the intention to participate could be indicated. They then organised individual face-to-face or online conversations with the respondents. Here they informed them about the project and explored their motivation for joining. They posted the recruitment call in the university Facebook group, and an article about the project was published on the university news page. They also sent out invitation letters through various information hubs such as the NGO for the hard of hearing youths. Many months later their first research group – Common Signs RG – meeting was held.

Recruitment Through Established Groups

Another effective recruitment strategy is to identify already established groups of youth within the community who are interested in the research topic. In most local areas, there are groups organised by the municipality, various organisations, and youth or sports clubs. One advantage of this approach is that the youth already know each other, which can contribute to an inclusive environment during meetings. If these groups have their own coordinator who is already well-known to the youth, involving them in the meetings can be particularly beneficial.

The coordinator, familiar with the youth, can support them during their involvement in the project, ensure the language used is accessible, and facilitate communication during the project. An example from YouCount is the Swedish research team, which had previously worked with the local youth council. They successfully continued this collaboration by convincing both the youth and their coordinator that participating in the project would be beneficial for their future goals. This coordinator became a valuable asset for both the researchers and the young people throughout the project.

Schools as an Arena for Recruitment

Schools can also serve as a venue for recruiting young people to be part of the research project. Contacting the school administration for assistance or organising a visit is one approach. Another option is to reach out to teachers directly. As teachers often have a good understanding of their students, they can help identify young people who have a particular interest in the research topic or way of working collaboratively and exploratively. Schools as an arena for recruitment can be especially effective for getting in contact with youth if the researchers have not previously worked with this demographic. In YouCount, the Lithuanian team collaborated with the administration of upper secondary education institutions (gymnasiums) who approached the target group, namely young people aged 17-19 years. They were also able to organise meetings at the schools, which were deemed valuable to both parties.

Collaborating with Schools

Another strategy is to not only use schools as arenas for recruitment, but to collaborate with the schools and with teachers throughout the project period. Working with citizen science within the educational arena has been the traditional approach when working with children or youth, but introducing citizen social science is quite new.

The Danish YouCount case, for example, experimented with implementing citizen social science in a high school class to engage local youth to investigate their neighbourhood and develop social innovations for civic engagement. Introducing citizen social science in schools has several advantages and challenges. One advantage is that you do not take "free" time away from the youths (outside school). A challenge is that the youths are not participating "voluntarily" but because they need to due to school obligations.

Aha!

Recruitment is not a one off event, but an ongoing process with several stages, and several rounds.

Though there can be a lot of challenges working with citizen social science in schools, we have also observed that it brings a motivating and actionable approach to traditional teaching. The involved youth learn about new perspectives and opportunities in their community. If you want to work with youth citizen social science in a school setting, we recommend that you are flexible and adaptive in both planning and facilitating classes.

Understanding Motivation as Recruitment Strategy

Recruiting for citizen social science is an organic process, as you might have guessed by now. It has a double aim, to inform about the project, and to find participants. Therefore it is wise to adopt and adapt creative recruitment strategies – in plural. Figure out what the internal and external motivations for joining a citizen science project is. And the best way to do that, is to ask the youth themselves. Locate the gate openers as well as the gatekeepers of youth, you can get surprising help and connections by informing about your project idea. Our general advice: Collaborate with the former and negotiate with the latter. The following example reflects a common recruitment strategy adopted by several cases:

> ***"The help of youth coordinators in the district, active community actors and professionals from cultural centres was used to find the most dynamic young people in the district, invite them to participate in the project, and get them interested in the project idea." – Researcher from YouCount Lithuania***

As part of the recruitment activities, some of the cases in YouCount reported multiple attempts to understand young people's motivations and answer any queries about the project:

Key Takeaways

- **Use analogue and creative methods.**
  - We all need to get away from our screens from time to time, and creative methods help us to see things from different perspectives.
- **Go out into the neighbourhood.**
  - Do not get stuck indoors. Go out and talk with "real" people together with the young co-researchers.
- **Connect the school with local stakeholders.**
- **Don't be afraid to try out wild ideas.**
  - Citizen social science is all about creativity!
- **Allow for project work in research groups.**
- **Have a clear goal in mind.**
  - Defining a concrete aim and end-product helps to motivate both adult researchers and youth and gives the group something to work towards.
- **Divide into phases.**
  - Dividing the co-creative work into concrete iterative research/design phases makes it tangible for both the youth and the teacher (investigate -> analyse -> develop -> disseminate) (discover -> define -> develop -> deliver).

Young people in Preston, United Kingdom, participating in a training session to find out more about YouCount. Photo by Jo Brown.

Engagement and Retainment

Engagement and retention, to upkeep the energised involvement of youth, are crucial in youth citizen social science. Young people are the cornerstone of the research, and as we have elaborated in the previous chapters on co-creation, they should be involved from the beginning to the end. This means that their involvement requires a significant amount of time and effort, and participating must be worth their while. It's also important to remember that young people juggle multiple commitments – school, work, extracurricular activities, and socialising – so their time is extremely valuable. We will elaborate on the importance of incentives in the next section. Here, we will share some essential elements that should be in place when engaging young people in citizen science projects.

Creating a Safe Space

When inviting young people into a research project, it's important to establish a productive, fun, and creative atmosphere where everyone feels encouraged to openly contribute their thoughts and ideas. To ensure such a safe environment, dedicating time to getting to know each other is crucial and can prevent attrition and ensure that youth do not drop out. Using icebreakers, and engaging in fun activities are also ways to foster such an environment. Additionally, establishing an informal way of speaking with each other is essential. In YouCount, the 'splot' method, developed by researchers on the Norwegian team, was an essential tool in many cases for building relationships and creating a safe space. 'Splot' is a drawing method where participants are encouraged to write or draw places, people, and activities that are important in their lives, where they feel good (Hagen & Osuldsen, 2021). See our Toolkit in Chapter 9 for details on how to use this method.

When in a large group of people, some participants, both young and adult, might be reluctant to share their ideas and thoughts out loud. Discussing in a smaller group first can make sharing easier. Therefore, it can be valuable to consistently employ a 'think-pair-share' approach when facilitating meetings. This means that everyone first gets time to think for themselves, then discusses in pairs or smaller groups, before presenting or sharing with the larger group.

Accessibility and the Physical Space

Additionally, it's important to remember that the meetings must be accessible to the youth. This means that they shouldn't have to travel far to attend and that the meetings are held after school hours or during the weekend. If the youth live far from the university, it may be preferable to find another venue in the young people's neighbourhood.

Being in a familiar environment can also contribute to creating an informal and safe atmosphere during the meetings. Be aware and ask the young people about the type of physical space they prefer. Some might find the university or school to be a conducive learning space, while others might prefer a more informal setting. If needed, an informal space can be created through simple adjustments, such as introducing a couch instead of desks and chairs.

Being Flexible

It's also important to be flexible during the meetings/workshops by adapting and adjusting the schedule as needed. There are times when a planned task or method does not unfold as expected and you need to switch to an alternative approach. Other times, the youth get really engaged in a task, and it's valuable to consider allowing them to continue, even if it challenges the set time frame.

Having a diverse range of methods available and avoiding overly tight schedules can make implementing this flexibility easier. Furthermore, be prepared for varying attendance levels; some days might see full participation, while on others, many may cancel at the last minute due to other commitments in their lives – as highlighted, young people have busy schedules and their time is precious. In YouCount, some cases have found that arranging predictable, recurring meetings leads to more consistent attendance.

Building Relationships

Being part of a research project also provides an opportunity to build relationships with other youth, researchers, and stakeholders. Sharing food, taking breaks, and engaging in activities unrelated to research can be effective ways to foster these connections. In YouCount, some of the youth who travelled to consortium meetings abroad highlight-

ed getting to know young people from other cases and countries, and spending time together as the most significant outcome of their experience.

In the Spanish case, the researchers realised the significance of contextualising the origin of the project and deepening its justification. Thus a first work dynamic was carried out with the young people, where they were asked about their expectations in relation to their participation in the project. On a general note, researchers should strive to be open to sharing about themselves and their personal lives with the youth as well and engage in informal talk during breaks.

Key Takeaways

- **Define the main topic of research together with the youth.**
- **Involve youth in the coproduction of the research process.**
- **Let the youth guide the researchers to the aspects that they are most interested in and take time to map out their own experiences.**
- **Introduce discussion on "a good life", personal storytelling and sharing. What are the elements of a good life for the youth? For the researchers?**
- **Co-create a group contract to align expectations and resources.**

Incentives

For young people (and all of us) who are involved in citizen social science, motivation is a complex matter. This insight has matured over the years of researchers testing, discussing, challenging and probing the possibilities for remuneration and incentives of the youths' efforts and contribution in YouCount.

Youth can be involved in citizen social science in many ways, through their school class or as a volunteer activity or paid job. Regardless of the circumstances, they are never remunerated in the way that professional researchers - or adult stakeholders are, through their full paid job salary. In discussions with the youth in YouCount, it was clear that since they are engaged in the project in their spare time, they see the need to be more intrinsically motivated. How do you ensure this? We have gathered a non-exhaustive list of ways to incentivize youth citizen scientists.

Make it Relevant for the Youth

Ensuring that participation in the project is relevant and meaningful for the youth can be an incentive for their involvement. By co-creating the project and research aims, the topics investigated become important in the youths' lives, not just within the research community. To keep the focus relevant to the youth, it's crucial to listen to them throughout the project and allow them to lead the data collection. This principle is central in participatory research with youth, as elaborated in the chapter on data collection below.

Arranging living labs, where local stakeholders, researchers, and young people can discuss the research and develop ideas that will make a difference both short-term and long-term, is important. In these settings, they see that their participation can lead to positive outcomes, not only in their own lives but also in the lives of other young people. The involvement of stakeholders is also a way for the youth to expand their network within the community, creating opportunities for them in both the short and long term. In the Norwegian case of YouCount, one of the stakeholders provided part-time jobs for three young people as a result of an informal conversation during the first living lab.

Make it Social – Food Always Works!

Serving or making food together is essential when involving young people in research projects. Not only does it contribute to an informal atmosphere and facilitate relationship-building, as mentioned above, but it also provides a much-needed energy boost. Arranging meetings after school or work means everyone, including the researchers, is likely to be tired, so this boost of energy is crucial. If in doubt, ask the youth what food they prefer and remember to inquire about any allergies, dietary or religious restrictions they might have. When we discussed this with some of the young people in YouCount, they told us, "If you serve food, we'll be there".

The research team in Norway started their days of training by serving healthy snacks like energy bars, fruits, and iced tea. This was done for two reasons: to give extra motivation for the youths to show up, and to strengthen the collectivity. *"Youths often describe food as important when giving feedback on participatory work."* (Norwegian case, D. 2.3: Ridley et al., 2023:34)

Salaries, Rewards and Prices

Challenge the systems that define citizen science as purely voluntary activity! Being a citizen social scientist requires time and effort, and paying them hourly salaries should be prioritised. Young people often seek paid employment outside of school and university settings, and voluntary participation in the research project may not be a top priority if they secure other employment – remember that young people's time is precious.

Aha!
Having problems incentivising youth? Never underestimate the power of food!

Despite restrictions from the EU funding requirements, some YouCount cases managed to provide some form of monetary incentives to support longer term engagement. The Danish team hired a young person who helped with recruitment and engagement, while the Norwegian team collaborated with a stakeholder who engaged local young people who took on "paid communication assignments", like recruitment, visual documentation or outreach. In the Swedish case, young people were commissioned to use the App for one week. Most researchers felt that the young citizen scientists could have benefited and been incentivised by monetary rewards (D.2.3: Ridley et al., 2023:36).

However, we recognize that financial compensation may not always be possible. Offering prizes such as vouchers for cinemas, other activities, food, or transport can be an alternative form of appreciation.

The UK team introduced a one-to-one mentoring scheme, including matchmaking, career guidance and plans for personal development, to support their young citizen social scientists, when they were inhibited from paying the salaries Personal future possibilities are an empowering asset, since the combination of networks, skills, and certificates lead to increased future opportunities for further education and work. Stakeholders, too, tried to raise awareness of the issue of remuneration already in the beginning of the YouCount project.

RESEARCHERS' PERSPECTIVES

As an academic research team, it was generally felt that being able to offer some financial remuneration would have had a positive and affirming impact on how the young citizen scientists felt valued as genuine 'equals' to the paid staff.
– Researcher from YouCount UK

One of our young co-researchers said that she didn't know that she had these capabilities in her, that she could do this kind of thing. But now she knows. And we were like, 'wow, that's pretty emotional and like, really amazing to hear'.
– Researcher from YouCount Norway

RESEARCHER`S PERSPECTIVE

When we go somewhere to talk about migration and we invite our young citizen scientists, they are the experts and need to be paid accordingly. And it should not be 'oh, let's give them some chocolates!'. When I go to university to talk about my work, I don't get paid with chocolates. I get paid with money. And so should they. If we don't, what does that say about their role in the project? " – Researcher YouCount

And then there is the timing of the project. Remuneration doesn't boost engagement when young people are facing exams. School is (and should be) the most important priority.

Photo by Nagore Valle

Oops!

Young people prioritise the exam period above all other activities, including participating in a citizen social science project. Make sure to plan accordingly.

Key Takeaways

- **Consider to pay youth salaries for their work.**
- **Prioritise food and relational activities at every session.**
- **Offer gift vouchers for cinema, food, transport.**
- **Make it fun! Gamify activities, introduce competitions.**
- **Provide generous amounts of textiles, colours and physical material in workshops.**
- **Write a thorough certificate and help formatting CVs.**
- **Make introductions to your own networks of professionals.**
- **Give (extra) university credits for volunteering.**
- **Include youth in social events, trips and conferences abroad.**

FURTHER READING

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Methods in Youth Citizen Social Science

Now you are well prepared. You have co-created a research design process that includes all the subtleties and nuances of how social relations are established and maintained. You are now ready to enter the first floor of the House of Citizen Social Science, where you will indulge in the observational gaze, the listening mode, and the survey mindset to collect, or rather reach for, the data of your scientific dreams. The pillars of the house, documentation and communication, are also included under the heading of "methods", as well as the next level, data analysis. But first, how do you dive into data collection with young citizen social scientists?

Data Collection

Authors: Sara Berge Lorenzen, Cathrine Marie Skovbo Winther, Aina Landsverk Hagen, Julie Ridley & Maria Turda

When involving youth as co-researchers, the youth will not only contribute with their thoughts and ideas but also be actively involved in the data collection. Making sure that the data collection phases are inclusive is thus a key part of youth citizen social science. Doing participatory data collection in this way takes time and requires researchers to work differently than they are used to.

Researchers must ensure that the research topics are available to the youth; they need to adapt the research methods to be accessible and inclusive; they have to be open to learning from the youth throughout the process; and they must ensure that the environment is safe and inclusive for all youths involved. This requires a great deal of flexibility and patience, but the outcome is definitely worth it. Youth bring a different and valuable perspective to the research, asking different and often better or more precise questions, gaining access to different people, and they are experts on topics that involve themselves and their environment. An important step in involving young people as co-researchers is providing training on how to do data-collection in an ethical and scientifically responsible way.

Training for Doing Data Collection

In the YouCount project, we didn't follow a structured program for training in all cases, but rather developed a framework for training that could be used as guiding principles and adapted to different contexts and types of youth. This framework has since developed to become the House of Citizen Social Science, which structure this handbook.

The framework, as mentioned, is a model of a house consisting of different rooms with topics and principles that are important to include in a training program (Figure 5). The house has three floors, each housing three rooms, along with an attic. Here, we will describe how this framework can be used as a tool for planning training programs for prospective young co-researchers.

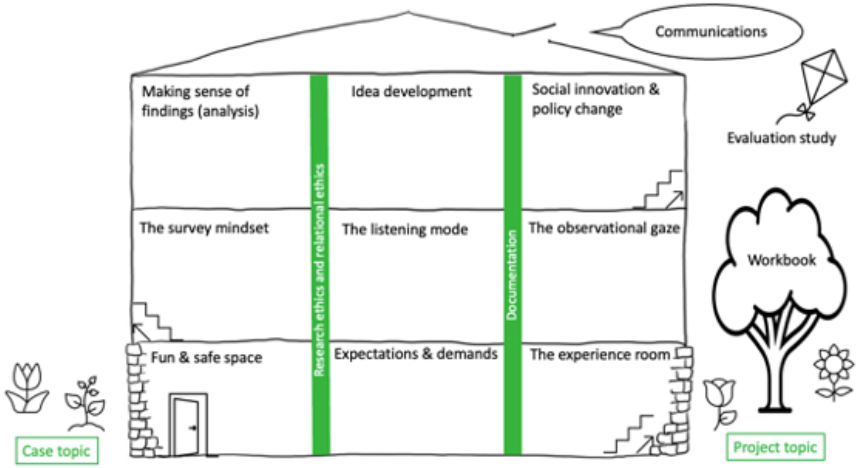


Figure 5: *The first version of the training house.*

The Training House

Ground floor: The rooms on the ground floor constitute the foundational structure of the house – what needs to be in place before starting the training:

- **Fun & Safe Space:** Investing time to getting to know each other and to use different tools and methods that will contribute to the room becoming a safe and fun environment for all participants.

- **Expectations and Demands:** What can we expect from young people when they get involved in the project, and what do they expect and demand from the researchers? Having a clarification of expectations is an important part of creating a safe environment for the prospective young citizen scientists.
- **Our own experiences:** Allocate time for mapping out and discussing the young people's experiences from their everyday lives that are relevant to the research they will undertake, and preparing them to build on these experiences. It is also important to recognize and build upon the youths' prior experiences with research methods. Students may have conducted research projects during their education, while younger youth may have been introduced to social science in school. Tailoring the training and the data collection to align with the co-researchers' knowledge and experience can ensure that the process is more meaningful and relevant to them.

Second floor: When the foundational elements are in place, it's time to introduce the youth to interdisciplinary social science research methods, equipping them with the skills to turn on what we have called "the survey mindset", "the listening mode", and "the observational gaze". Our approach aims to reduce lectures and PowerPoint presentations to the bare minimum, focusing instead on practical tasks. Examples of practical training exercises that have been used in the YouCount project include role-playing, doing mini fieldwork exercises, observing the researchers conducting an interview and interviewing each other.

Third floor: The third floor of the training house is devoted to teaching the youth about the post-data collection phase. About analysing and interpreting the data, and how to utilise their findings for idea development together with policymakers and researchers. Emphasise the potential of their research to create an impact, both in their lives and in the lives of other youths.

Ethics and Documentation: In the training house, research ethics and documentation are the load-bearing beams of the house. This emphasises that practical tasks related to ethics and documentation should be incorporated into every aspect of the training and the data collection.

In practice, the training unfolded in various ways across the cases in YouCount. In some cases, the researchers offered training to the youth as the cases developed. In other cases, the training took place over specific days before starting the data collection, with additional training sessions later when new research methods were introduced. Most importantly, training is an ongoing process, where you should always ensure that the young citizen scientists feel safe, supported and that they know what they are or should be doing in the field.

Key Takeaways

- **Training co-researchers.**
  - Training is an ongoing process, and should be tailored to the local context, the specific project, and the youth involved.
  - Use time and various methods to ensure a safe and fun environment.
  - Tailoring the training and the data collection to align with the co-researchers' knowledge and experience ensures that the process is more meaningful and relevant.

Participatory Data Collection

When doing participatory research with youth, it is important to let the data collection follow the young citizen scientists' curiosity, listening to their ideas and tailoring the data collection accordingly. Letting the young citizen scientists' perspectives, thoughts and ideas lead the data collection is also what makes the result different from what it would have been if the researchers conducted the data collection by themselves. From our experience in YouCount, it's key to adapt the research methods to be accessible and inclusive for all the young people involved. Making the methods both enjoyable and relevant to the youth is a crucial part of this adaptation.

The Listening Mode – Interviews and Informal Conversations

Interviews are an important method for collecting data in youth citizen social science, just as they are in social science in general. In projects where young people are

involved as co-researchers, interviews can be conducted in various ways. One approach is through informal or formal, individual or focus group interviews with the young citizen scientists to provide data about their views on the research topic.

For instance, many of the YouCount cases initiated focus group interviews either with the group of co-researchers at the project's beginning or with other youth later on in the project period. These interviews and informal conversations aimed to gather young people's perspectives on social inclusion and to foster a shared understanding of the research topic. Additionally, focus group interviews are an effective method to gather data about the young citizen scientists' experiences participating in the research project, as we elaborate in chapter 6 on evaluation.

Interviewing is also an activity that young citizen scientists can either lead or collaborate on with professional researchers. Individual or focus-group interviews may be entirely youth-led or a joint effort between professional researchers and the youth. Young citizen scientists should be involved at every step, from developing the interview guide to analysing the interview data.

Young citizen scientists often generate questions that differ from those of professional researchers, which makes their contributions to the interview guide particularly valuable. Their presence creates a distinct atmosphere during the interview, and their perspectives and insights are invaluable to the analysis. In YouCount, the young citizen scientists primarily conducted both formal and informal interviews with their peers and local stakeholders. While interviews with peers were usually entirely youth-led, professional researchers were more involved in interviews with stakeholders.

When youth interview adult professionals, such as stakeholders, it is important to consult with the youth about what they feel comfortable with and how you can support them in the situation. Facilitating an informal atmosphere or having an adult researcher present, can be effective ways to provide this support.

For example, in YouCount, when the Norwegian team was going to conduct interviews with stakeholders, they went in groups compromised of one or two co-researchers and one professional researcher. Before the interview, the interview team had a preparation meeting where they discussed what roles the young citizen scientists wanted to have during the interview. In the UK, when the youth were going to conduct interviews with stakeholders, the stakeholders were asked to arrive at lunchtime, which allowed the co-researchers to speak informally with them before the interview.

When co-creating the interview guide, the youth should formulate their own questions, rather than merely commenting on those already devised by researchers. Encourage them to consider what they aim to discover and offer support in crafting their questions if needed. When the Swedish team was going to interview older youth, the researchers asked the young citizen scientists to picture themselves as ten years older and come up with questions that they would want to ask their older selves. In Norway, the researchers had a good experience with creating interview questions around a so-called "secret question". The secret question is decided among the group and is a question that they want answers to but can't ask directly. For example, when interviewing one of the local stakeholders, the secret question was "Do you truly want to make a difference for youth?". The young citizen scientists then came up with a set of interview questions to find out the answer to the secret question indirectly.

The Survey Mindset: Surveys and Questionnaires

Surveys and questionnaires are an effective way to explore the opinions of a wider group of young people about the research topic or their local area. Involving young citizen scientists in the development of the questionnaire ensures that their perspectives lead the data collection process. Their input can also make the questions and response categories more relatable and meaningful to young respondents. In co-creating questionnaires, it is essential to involve young citizen scientists at every stage — from the development of questions and response categories to recruitment and data analysis. This approach extends beyond typical practices, which often limit the involvement of participants to merely testing questionnaires before distribution. In the UK case study, several young people expressed an interest in designing a questionnaire survey during the training. They wanted to use the survey to explore a wider group of young people's opinions about their local area. One of the team's students held an online workshop about questionnaires as a research method before the young citizen scientists developed questions and discussed the distribution strategy.

Questionnaires can also be used to collect data on how young citizen scientists experience being part of the research process. They offer a way for them to provide feedback anonymously. In YouCount, questionnaires were used in the evaluation study (see more in Chapter 6). Additionally, the Norwegian team asked the young citizen scientists to anonymously answer two simple questions at the end of every meeting: 'What is the most important thing you took from today?' and 'Was anything difficult?' This reflexive approach allowed them to receive instant feedback and tailor subsequent meetings accordingly.

The Observational Gaze: Observation and Field Studies

Observation and field studies are another important method in youth citizen social science. Engaging in participant observation at youth clubs and other places frequented by young people allows co-researchers to gather data about their local areas. Similarly, observing political meetings or stakeholder interactions can provide insights into practical decision-making processes.

These methods can be applied in various ways. The Italian young citizen scientists observed meetings with stakeholders and were encouraged to document not only their ideas and thoughts but also the descriptive, interpretive, and emotional aspects that emerged during these meetings. In Denmark, teams of young citizen scientists, equipped with notebooks and cameras, undertook bike rides through their local areas, stopping at various locations to observe sustainable solutions and interview local actors. In Norway, young citizen scientists visited local youth clubs to conduct field studies, where they engaged in both observation and informal interviews with other youths.

Additionally, it's important for professional researchers to document their observations and experiences when facilitating and participating in meetings with citizen scientists. The interactions and dynamics within these meetings provide essential data about the process. One effective method to document the researchers' experiences and observations is to conduct a debriefing session after the meeting. For instance, in the Norwegian case, a form was used where the professional researchers collectively answered questions such as 'What was the plan for today?', 'What happened?', 'Who was present?', 'What are the implications for youth and researchers?', and 'What are the after future actions?

Mapping Reality: Using Maps for Collecting Data

Using physical maps is a valuable tool for collecting data on how youth use and experience their local area. Maps of the neighbourhood can visualise the area, its obstacles, and opportunities without being physically in it. This can act as a boundary object to create a shared language between two partners. In the Danish case, maps were used in the early stages of interaction with local stakeholders and youth to understand where to find the youth and, secondly, to understand the neighbourhood seen from a youth's perspective. The examples below show two map-based methods. The maps were staged with loose objects, such as emojis or signs, to add additional information to them.

Figure 6: *The map on the left was used in informal conversations with community youth in the Danish case. The one to the right was used with local stakeholders.*

Key Takeaways

- **Let the young citizen scientists' perspectives, thoughts, and ideas lead the data collection, this will make the result different from what it would have been if the researchers conducted the data collection by themselves.**
- **Adapt the research methods to be accessible and inclusive for all the involved youth.**
- **For it to be participatory data collection, the young citizen scientists must do research.**
- **Young citizen scientists can lead and collaborate when conducting interviews.**
- **Youth should be involved in the development of interview guides and questionnaires, giving a valuable perspective in the data collection and ensuring their perspectives shape the process.**
- **Engage the young citizen scientists in all stages, from question formulation to the analysis of the collected data.**

Co-Creative Methods: From Photovoice to Gamification

Incorporating creative and art-based methodology, tools, and approaches is key when involving youth as co-researchers. Being creative together can build relationships over time and make the research process fun and engaging for both researchers and young citizen scientists (D.3.2: Pataki et al., 2023B). In YouCount, a variety of creative methods have been utilised, with researchers experimenting and drawing upon their local expertise and diverse research backgrounds.

Incorporating Multimedia in the Data Collection

Photography and video can be valuable in the data collection of a youth citizen science project. Taking photos and videos serves not just as documentation but also as a means of fostering important conversations, using the young citizen scientists' own photos and video clips of their surroundings and observations. In addition, taking photos and video provides a tangible and engaging activity during fieldwork.

For example, in YouCount, photovoice was an important method in many cases. In Italy, young citizen scientists using photovoice sparked critical discussions about the limitations and resources in their neighbourhoods, as well as their living conditions. In both Spain and the UK, researchers and young citizen scientists conducted photo walks to delve deeper into issues of belonging from the young people's experiences and perspectives.

In Norway, Polaroid cameras were a consistent part of the research kit, while in Denmark, photography was integrated into field studies conducted on bikes. Participatory video-making was key in Hungary's Case B, where young citizen scientists produced video diaries and engaged in video-making exercises inspired by participatory theatre and art-based research methods. During their training, they created video interviews, and the data collection phase involved developing short social advertisements and creative video footage.

Gamification and Competitions

Incorporating gamification elements and competitions can be an effective strategy for making the research more fun and engaging. In Norway, the research team introduced a data collection competition, where young citizen scientists competed to conduct the most interviews with local youth. This competitive approach was highly popular, leading to the incorporation of competitive elements into most meetings and research activities. In Denmark, to foster discussions about sustainable innovation, they organised a rally where the young citizen scientists competed to propose as many ideas as possible. They also designed a game to assist the involved youth in further developing their ideas. In Sweden, responses from a co-created questionnaire were transformed into cards, making the analysis of data into a card game.

Creativity in Focus Groups and Living Labs

When organising focus groups with young citizen scientists or facilitating living labs with stakeholders and youth, incorporating creative elements can foster a safe environment. Creating an output can be a way for participants to express themselves, and engaging in tangible activities can make the conversation flow more easily. Additionally, creating something together establishes a different atmosphere than simply asking questions and receiving answers.

In YouCount, creative elements were incorporated into focus groups, dialogue forums, and living labs in various ways. In Denmark, the living lab was set up at a local festival, where young citizen scientists presented the project through posters and videos. They also designed interactive objects for local citizens to engage with and provide feedback on youth innovations. In Norway, an embroidery artist was invited to a dialogue forum, and an exhibition was co-created with the young citizen scientists to disseminate research findings to stakeholders and other local youths. In Italy, dialogue forums were based on photovoice, whereas in Lithuania, design thinking was used as a methodology. In Spain and Italy, photo exhibitions were organised where the young citizen scientists discussed their photos with stakeholders.

When incorporating creative elements in this way, it is important to recognize that not all youth are always comfortable with creating an output to express themselves, and alternatives should be provided to ensure everyone feels included in the process. During a focus group in the UK, the youth articulated their responses by creating artefacts using art-based materials such as Lego, play dough, string, cellophane tape, and pen and paper. Once the artefacts were created, they set up an exhibition where the creators displayed and explained their creations.

While the researchers believed that allowing the youth to express themselves artistically would encourage openness to participate, they also encountered some participants who feared they weren't 'artistic enough.' Therefore, they were given the option to respond verbally or through a poem. In other cases in YouCount, researchers also experienced that some youths were hesitant to engage in creative processes, while others were very enthusiastic. Being aware of these differences, offering encouragement, and providing various participation options are important to ensure an inclusive process.

Key Takeaways

- **Incorporate creative and art-based methodology.**
  - Engaging in creative activities can build relationships and make the research process enjoyable for both researchers and young citizen scientists.
  - Experiment and draw upon your local expertise and research background.
- **Use photography and video.**
  - Not only do they serve as documentation but also encourages meaningful discussions and offers engaging fieldwork activities.
  - Photovoice can lead to critical discussions about community issues, while photo walks offer insights into the lived experiences of young people.
- **Incorporate competitive elements and gamification.**
  - This can motivate young citizen scientists and make data collection more fun.
- **Include creative elements in focus groups and living labs.**
  - Incorporating creative elements can foster a safe environment and create a different atmosphere.
  - Creating something is a way to express yourself.
  - It's important to provide various options for participation, recognizing that not all youth may be comfortable with artistic expression, and to adapt methods to include everyone.
- **Create exhibitions.**
  - Artefacts created by young citizen scientists can be used in exhibitions to engage and explain their work, fostering a deeper understanding of the research findings.

Using Digital Tools in Citizen Social Science

Authors: Ingar Brattbakk, Alexandra Czeglédi, Flora Gatti, Aina Landsverk Hagen, Philipp Hummer, Melanie Saumer, David Borgström & Suzanne Wilson

Digital tools and citizen science research are closely linked, as the former provides the latter with a supporting infrastructure to facilitate data collection and direct citizen participation. Digital technologies are increasingly incremental for sustaining engagement, lines of communication, a multitude of data collection methods, types and techniques and for facilitating social innovation.

With the mediating support of digital tools, citizen science research can also be conducted from remote locations when internet access and digital literacy materials are adequately provided to participants (Aristeidou and Herodotou 2020; Mazumdar et al. 2018; Sturm et al., 2018). Often, digital tools can strengthen or support both the survey mindset, the observational gaze, and the listening mode - depending on the tool.

Digital tools are directly related to the broader themes of participation, engagement, empowerment, and learning in citizen science. Well-designed digital tools for data collection and communication can contribute to the development of social innovations and the formulation of new solutions to existing societal challenges (Skarlatidou et al., 2019; Novak et al., 2018; Ceccaroni et al., 2019). In YouCount, the application of a wide variety of digital tools was reviewed to better understand their role in citizen social science (D.3.1: Pataki et al., 2023A). The App, which we will present in detail in the following, is one of several possible digital tools which may be used. Additionally, a variety of other digitally based data sources may be considered.

Background – Why the YouCount App?

Digital fatigue has long been visible among all age groups, and become even more present since the Covid-19 pandemic. Youth, disproving the assumption about digital native generations, have also shared their concerns about the limitations of disproportionate digital participation and interactions. In some cases, youth specifically opted for analogue tools to foster more face-to-face collaborations in their local research groups and interactions with stakeholders (D.3.1: Pataki et al., 2023A).

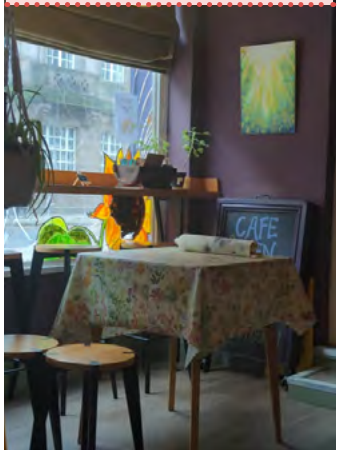
In YouCount, our initial idea was that a digital tool for smartphones could generate valuable data and insights in a co-creative youth citizen social science project like ours. We therefore developed the YouCount App Toolkit with the main aim of giving the young citizen social scientists a tool to observe and report 'when out there' in their daily lives (D.1.3: Ridley et al., 2021).

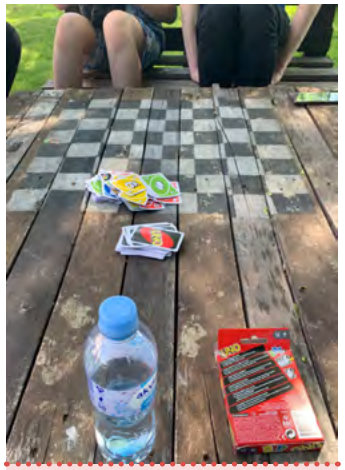
This tailor-made smartphone App was developed in a co-creative way with professional and young researchers from the ten local cases, in close cooperation with the SPOTTERON Citizen Science App platform (Figure 7). The idea to develop an app was inspired by the long tradition of using apps in citizen science projects within the natural sciences, often made for large-scale mapping/monitoring. We were ambitious and wanted to explore how to develop an app for studying social phenomena relating to young people, as digital devices have rarely been used in citizen social science.

Figure 7: *The YouCount app is based on the SPOTTERON Citizen Science App platform.*

Our aim was to develop an inclusive and user-friendly ICT tool in a co-creative way with and for young citizen social scientists, to test how they used it, and to explore what kind of qualitative and quantitative data it generated (Figure 8). This process gave us a number of valuable insights, which we will outline below. However, before doing that, we will briefly explain how the tool itself works. Apologies in advance for any technical jargon ahead; we'll do our best to clarify as we go along.

Comment:
" Hanging out with friends. Feeling good in this place"





Local Café

Activity: *Volunteering*

With Whom:

Teachers or activity facilitators

How do you feel here?

5 - very good

Do you feel you belong?

4 - yes

"A safe feeling environment where you are able to belong"

Feeling type:
Accepted and trusted by others.

What makes you feel this way?
"'I'm with people i know"
Comment: "Very good"

Figure 8: Three examples of data from the YouCount app, in the form of photos and comments.

How the YouCount App Works

The YouCount Citizen Science App utilises a colourful design approach (Figure 9). This was important to us, as we want to engage young people in science. The design allows participants to share their experiences in the form of markers on the map. The data input dialogue combines general location classifications with qualitative feedback inputs, and an optional section of case-study specific questions on various topics. Participants can choose to upload a photo to their data submission and include a comment.

The general, and mandatory, input sections of the App allowed participants to add data about where they are, who they are there with, what they are doing, their feelings related to that specific place ("How do you feel in this place?") and other more detailed aspects like feelings of belonging, safety, taking part in the community and more.

The case-study-specific sections include sub-questionnaires about the following areas of life:

- **Political or civic activities**
- **Finding or creating work**
- **Connect and be part of communities**
- **Connect with people from other cultures**
- **Communication for hard-of-hearing-youth**
- **Developing sustainable youth activities**

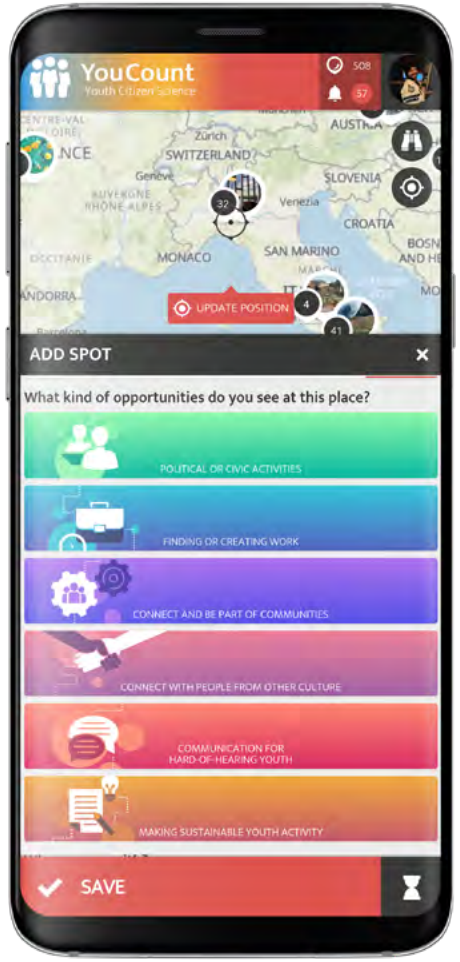


Figure 9. *Screenshot from the YouCount app.*

All sub-questionnaires are colour-coded and optional, and participants can pick the topics and questions that they want to answer in a particular situation. The questions in each section were co-created with the young co-researchers, and include qualitative feedback, classifications, text input, and list selections.

YouCount's target user group is the younger generation. Therefore, a key part of development was an easy-to-use and flexible parental/guardian consent system[1] for user account creation. Since legal age levels can be different in EU countries, the App compares the country of residence of a new user to a data table. If a user's age is below the legal threshold of a nation's age limit, an additional parental/guardian consent checkbox is displayed. This allows the project to have the required measures in place for working with young people in a digital interactive App toolkit for Citizen Science.

All submitted data is securely stored on SPOTTERON's IT infrastructure for running Citizen Science Apps, with all sensitive data encrypted via industry standard TLS/SSL. The YouCount project team has access to the data via a data administration interface that allows data filtering, data export and data and community moderation. To provide each case with independent access to the submitted data, an extended feature set has been developed. This feature set enables the setup and configuration of country-based administrator users. Each case-study has been provided with a user account for the data administration interface and direct access to the data export and management.

Functionality and Features

Other App functionalities include chronological lists of user contributions, statistics panels, and an offline mode with a data upload queue. The App has been translated into all major languages of the participating countries and automatically selects the language based on the user's device setting. Within the app, different kinds of map types[2] (standard map, satellite map, dark mode map, etc.) are available, as well as the option to visualise data as heatmaps.

[1] *How to Work with Young People in Citizen Science? Complying with Privacy Laws and Parental Consent Requirements in Apps*

[2] *Map Types for Citizen Science Apps, SPOTTERON Citizen Science App Platform, https://www.spotteron.net/blog-and-news/map-types-for-citizen-science-apps*

Additionally, the app facilitates direct communication between the project and its participants through short messages that prompt push notifications on users' smartphones. This engagement method aims to bolster motivation and facilitate the dissemination of news and updates, serving as a user-friendly tool for community outreach.

During the development of the country-based data administration interface, the push message feature was expanded to allow both the coordinator and national partners to send custom messages to users, enabling communication in native languages. See Figures 10 and 11 for examples. Other features include timed messages, links, emojis, and in-app pop-ups. The app also offers user-to-user and project-to-user interaction through comments, heart-shaped "like" buttons, and message wall posts.

Thus, by enabling more than just data collection and reporting, the YouCount App helps to promote and foster engagement and interaction within the project.

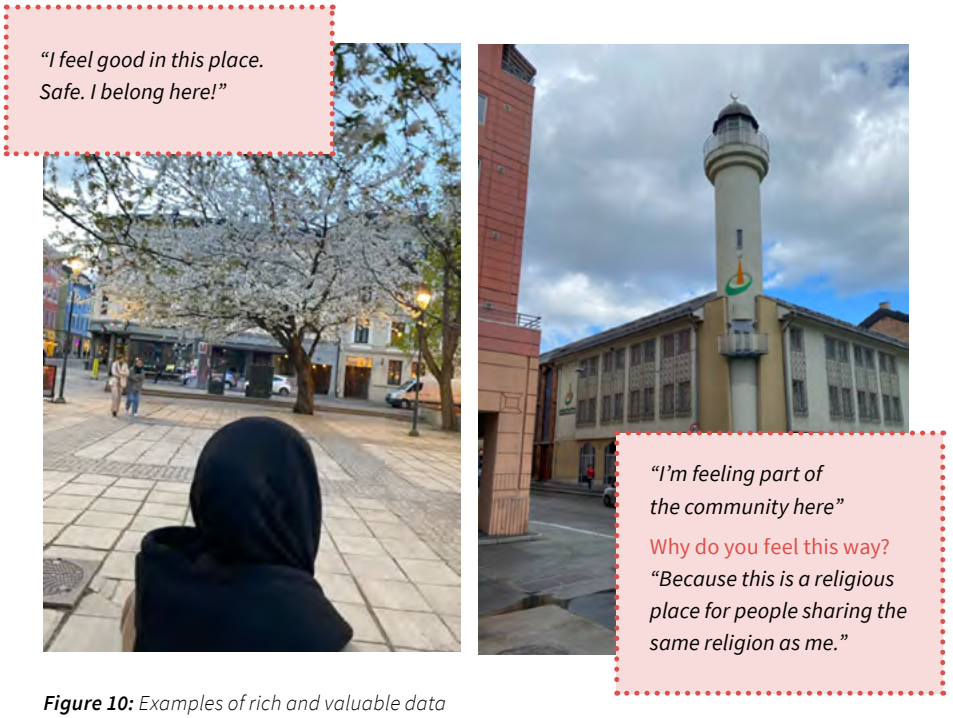


Figure 10: *Examples of rich and valuable data stemming from the YouCount App.*

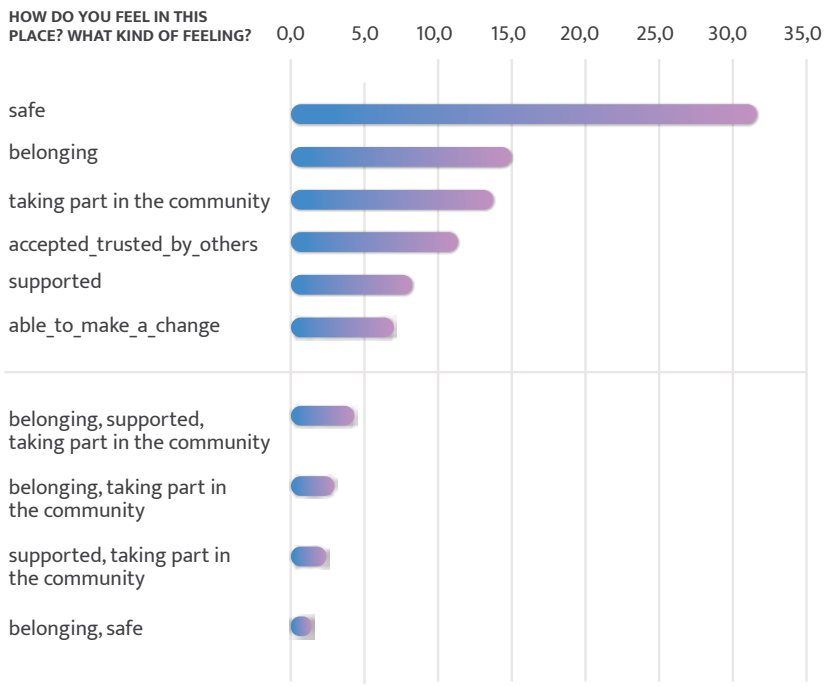


Figure 11: *Examples of app data showing the importance of safety for the young people participating.*

Youth App Engagement: Development and Usage

So, after this slightly technical description, it is time to reflect on our experience with the YouCount App, and what we actually gained as a research group from working with – and engaging young people in – this kind of digital tool.

One key takeaway is the importance of involving youth from the early stages of development, preferably from the proposal stage onwards, even if this means that the individuals involved change over time. Involving the same young people throughout the process is, of course, desirable, but it is not necessary and can be quite challenging due to time constraints and potential disengagement during lengthy development and approval processes. In YouCount, we discovered that while many young citizen scientists were intrigued by the idea of developing and using an app, actual engagement were lower than expected. One important reason for this was that our original plan to include a broader public across Europe was reduced to just a smaller target group in the case studies due to legal privacy concerns. Some Youths found it unintuitive to use the app in social settings, as taking out one's smartphone means distancing oneself from the social 'here and now'-situation. A better option would be to engage later when alone or in a focused observation mode when in a workshop or a walk-along.. Additionally, we realised that the concept of social inclusion was vague for some youth, highlighting the importance of clarity and purpose to maintain engagement.

Looking back, we recognised that engaging young people is easier when topics already have organised interest groups or potential for mobilisation. However, it is also essential to highlight that young people, as a group, are just as diverse as any other age group, and that engagement with smartphone apps varies greatly among young people, with some becoming dedicated super-users making the YouCount App into their public diaries (See D.2.3: Ridley et al., 2023 for more details).

Key takeaways

- **Make the aim and purpose as concrete and comprehensible as possible.**
- **A lengthy development process and delays may be disengaging: try to make the process as short and effective as possible, and find the right balance of young people's involvement in different stages.**
- **Too many questions and tasks in the app can be overwhelming: keep it simple and short.**
- **Limiting personalised user profiles (names, pictures, etc) was disruptive and disengaging: make it as personalised as possible.**
- **Critical mass of users and creating a community of users is important**
- **App use was most successful in organised settings and walk-alongs with a clear scientific role and task.**
- **The App gave us rich and valuable data on young people's experiences of social inclusion**

What it Takes – Purpose, Use and Dedication

When planning a project that incorporates an app, we have realised the importance of considering its necessity and purpose already at the proposal stage. Engaging young citizen scientists early on in the co-creative app development process is also crucial, as mentioned above. This collaborative effort should include young citizen scientists, professional researchers, and designers/developers, yet we now know that it is also wise not to involve too many people.

During the proposal stage, it is crucial to thoroughly plan for digital tools like Citizen Science Apps, considering scope, requirements, and legal considerations, especially when involving minors or the public. Before creating a new app, think about your project's aims and needs.

Ethics, Privacy and Consent

If you decide to co-create a new app, we recommend working closely with a professional citizen science app design company, like we did in the YouCount project. In addition to developing new, tailor-made app features, they can provide advice on online privacy, security, and digital ethics, topics that we initially knew little about. We also learned how important it is to engage ethical committees and data protection authorities early, in order to streamline the approval process, avoid delays, and address data privacy and ethical challenges. And remember, if your project involves underage participants, a parental or guardian consent system needs to be in place.

The more sensitive your research topic is, the more carefully you will need to consider data privacy and ethics, age limitations, and the level of personalised user profiles. We highly recommend involving experts to handle these aspects of your project.

Dedication is Key

For successful app development and usage, it is imperative that all professional researchers are dedicated to the app as a tool for data collection. This includes providing necessary training on the technological aspects and understanding of the app's uses. The organisation of the project will depend on its size, but consider organising workshops for all participants and establishing an App Working Group with representatives from all partners. Setting up an App Manager Group for handling day-to-day issues can also be benificial.

Our YouCount consortium consists of ten national cases, and we soon realised that the app needed to be translated into all relevant languages to make it inclusive and user-friendly. However any such changes result in new updates and new app versions, which must undergo review processes to meet App Store requirements. Hence, a first prototype of the app should be developed as quickly and as early as possible to stimulate discussion, spark creativity, and prevent delays.

In conclusion, when designing an app for youth citizen social science, make it simple, easy to use, and flexible enough that users can adapt their use and participation according to their interests and needs. In the YouCount project, our app was most successfully used collectively in social settings like schools and leisure-centres, and organised around clear topics and tasks. Walk-alongs in the local neighbourhood proved especially useful, but we recommend trying out different ways of using the app, and, of course, involving the young citizen scientists when planning any app activity.

The Result: Rich and Valuable Data

Despite lower-than-expected youth engagement, the YouCount App provided valuable quantitative and qualitative data. App registrations offered rich insights, complementing other methods and data sources used in the project. The geocoded data shed light on various important aspects of young people's lives, such as places and activities where they felt socially included and safe, and where they saw opportunities for participation, belonging, or performing citizenship (See D.3.1: Pataki et al., 2023A).

So, in summary, an app can effectively complement other methods in youth citizen social science by mapping where young people spend time and capturing their feelings and opportunities for belonging, inclusion, and safety. In the YouCount cases, this data served as a valuable starting point for discussions with young people and stakeholders during workshops, dialogue forums, and in living labs.

Digital tools were used heavily in the YouCount project from the very start, with

varying levels of success depending on the social context within which they were utilised. While some tools facilitated engagement effectively, others failed to meet youth needs in a user-friendly way. Gamified activities involving tools were popular and successful, as were conferencing and whiteboard tools that enabled youth to make meaningful contributions to YouCount meetings, showcasing the project's depth and significance.

The YouCount project has shown a potential of using an application toolkit for citizen social science purposes, rich social data and social science engagement. For example sustainability issues in the Danish case, mapping of social inclusive places for hard-of-hearing youths in the Hungarian A case and more awareness of places important for social belonging in the Lithuanian case. Further developements of such digital tools, especially suitable for social science research involving youth, is still needed.

YOUTH PERSPECTIVES

What I found interesting about the YouCount app was that we could take pictures during activities or in certain places in our local communities, and describe with our own words how we felt there; whether we felt included or excluded, safe or unsafe, etc.
- Young Citizen Scientist

I learned a lot about data privacy regulations and ethical considerations for digital tools by taking part in the app development process.
- Young Citizen Scientist

Bus Station
Activity: *On the go*
With Whom: *On my own*

"The bus station is often an unsafe place for some people, there is a great amount of antisocial behaviour and there is generally an unsafe and uncomfortable setting"

Figure 12: *Photo and comment from a "spot" in the YouCount App.*

Key Takeaways

- **Be flexible and willing to adapt and iterate the dialogical processes.**
  - Ensure a dynamic and responsive approach to communication, based on feedback and emerging ideas and needs.
  - Be aware of a potential tension, competition, and various emotions that can potentially emerge in the youth group due to the presence of highly-priced technological tools or unfamiliarity of their usage.

- **Do not assume digital proficiency.**
  - Such assumptions may lead to the exclusion of individuals who do not have access to technology.
  - Provide support and training as needed to ensure equitable participation, considering factors such as internet connectivity and device availability.
  - Do not overuse different digital tools and presentations in meetings. Introducing tools one by one might work better after a brief training session on how to use them.

- **Think about translation and adaptation.**
  - Supportive and complementary software turned out to be crucial for crossing language barriers. Translation and subtitle software enabled participants to better follow online dialogues.
  - Sometimes the initial purpose of the technology was repurposed, and complemented with other digital or analogue tools and methods in a way that better served the youth's interests and the research outputs.
  - Some digital design tools played a great role in designing and editing visual materials to better show the youth's perspective, e.g. in presentations, exhibitions or on social media.
  - Social media presence and digitally made outputs reinforced the youth's visibility in a way that fostered intergenerational dialogues and youth-stakeholder dialogues.

Photo by Priscilla Du Preez / Source: Unsplash.com

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Documenting Citizen Social Science

Author: Reidun Norvoll

Documentation, broadly understood as the documentation of research data or project experiences and findings, plays a crucial role in citizen science (Balázs et al., 2021; Gold et al., 2023). Recognising its significance, we have incorporated documentation as one of the pillars of The House of Youth Citizen Social Science (See Chapter 1, Introduction). However, the documentation of co-creative citizen social science projects is less explored in existing literature, as citizen science has traditionally focused more on quantitative methods and statistics (Vohland et al., 2021). Nevertheless, there exists a wealth of literature on documentation and data analysis for qualitative research in the social sciences that can be applied to youth citizen social science.

Documentation practices in citizen social science are extensive and complex issues. Therefore, we will not delve into details but rather focus on some key considerations when conducting a youth citizen social science project, drawing from the experiences of the YouCount project. This includes both research documentation and other relevant documentation practices for citizen social science. Additionally, we encourage readers to explore the chapter on communication for further insights into effectively communicating project findings to a broad audience.

In this chapter, we will start by situating co-creative citizen social science within the context of open science policy, and then discuss various approaches to documenting a project from a broad perspective on documentation.

Citizen Social Science as part of Open Science

Open Science is an EU supported movement to make scientific research, data and their dissemination available to any member of an inquiring society, from professionals to citizens. By broadening the principles of openness to the whole research cycle, open science aims to foster sharing and collaboration, bringing a systemic change to the way scientific research is done. Open science is closely interlinked with responsible research and innovation with an overall aim of bringing science into democracy and democracy into science (https://www.orion-openscience.eu/).

As discussed in earlier chapters, Citizen Science is regarded as an important scientific approach and strategy for advancing participatory democracy and open science. It aims to democratise (social) science and enhance collaboration between science and society (Irwin, 1995; Vohland et al., 2021; EC, 2016; Reiersen, 2022). The relationship between Citizen Science and Open Science is often viewed as symbiotic; citizen science can bolster the principles of open science, while open data approaches are seen to greatly benefit citizen science by increasing visibility, fostering collaboration, ensuring data consistency and persistence, and preserving the legacy of projects and their impacts (Gold et al., 2023).

There are various paths open science, particularly concerning the public ownership of science, data, and resource sharing. Among these, the most prevalent paths include open access, open data, and paths for open science, which emphasise transparency throughout the research process. The principles of open data, often encapsulated in the FAIR principles (Findable, Accessible, Interoperable, and Reusable), have become integral to data management plans and documentation practices in terms of open data and open scientific publications (Bonn et al., 2018; Gold et al., 2023).

While Open Science often prioritises the handling of extensive datasets, its fundamental approach of treating scientific data as separate 'items' for instrumental reuse may conflict with the ethos of co-creative citizen social science. In this context, the blurred distinction between the researcher and the object of study, coupled with the emphasis on holistic understanding of social phenomena, challenges the traditional model of data utilisation (Heiss & Matthes, 2017). Social data, being inherently temporal, contextual, and often personal in nature, presents unique challenges in adhering to Open Science principles, particularly the FAIR principles. Balancing the need for openness with confidentiality concerns, as articulated in the principle of 'as open as possible, as closed as necessary,' becomes especially complex when conducting co-creative citizen social science projects involving young participants, sometimes minors, and addressing controversial or sensitive social issues.

For example, the YouCount project faced many challenges in translating open science principles. We also struggled to strike a good balance between respecting the rights of young people to voice their concerns and ensuring the confidentiality of sensitive information and correct personal data procession according to the General

RESEARCHERS' PERSPECTIVE

I think that the idea that citizen science originates from the natural sciences, where data is 'hard', quantitative and 'all about the numbers', can make us feel insecure about the quality of our qualitative data and the process data we have collected.
– Researcher, YouCount

Data Procession Regulation (GDPR) (Canto Farachala et al., 2023; D.6.2: Norvoll, 2021; D.6.6: Pučėtaitė & Norvoll, 2021). As mentioned, the challenges pertained especially to the YouCount app which is based on the principle of open data. We also tried to develop metadata tables suitable for qualitative or mixed methods data in the social inclusion and evaluation research. Some examples of metadata tables are provided in D.2.2: Norvoll et al. 2022 and D.4.2: Freiling et al. 2022 (see overview of deliverables). A key learning is the significance of carefully considering the timing and method – the when and how – of making social data openly available during the project. Premature release of open data may be incorrect or lack meaning, suggesting the need for alternative approaches to transparency and communication in the early stages of research (see, for example, Chapter 4 on communication).

Documentation of Research, Data and Findings

Questions concerning documentation in citizen social science are multifaceted with no 'one-size-fits-all' approach. It depends on the aim of the study and is also related to what you understand as data, data quality and scientific knowledge generation. As mentioned, citizen science in the social sciences differs from the natural sciences. For example, the observation of bird species is more easily separated from the human observer as an object for data collection and analysis than when an interacting social actor observes other social actors (Heiss & Matthes, 2017). There is also a more blurred distinction between scientific and lay knowledge. This blurriness is even more prevalent in co- creative citizen social science projects which focus on mutual knowledge sharing and knowledge generation (D.4.4: Lorenz et al., 2023, Chapter 7 on Impact). The special nature of social science research will impact methodological approaches, analysis, and documentation practices in citizen social science (Purdam, 2014).

Yet, documentation of research is still important for scientific quality and trust in citizen social science. Youth citizen social science should therefore follow the scientific standards related to the different approaches and methods in the social sciences, being qualitative or quantitative. These overall standards include for example choice of best data type for the research goal, accuracy, consistency, relevance, representation, reliability and validity of the collected data and data analysis (Balázs et al., 2021; Gold et al., 2023). While qualitative research is typically less concerned about biased data, it remains crucial to maintain reflexivity and transparency regarding how various factors, such as the research context, participant selection, and the backgrounds and perspectives of researchers and young citizen scientists, may influence the documentation of research. Reflexivity also entails continuously evaluating the advantages and limitations of data documentation and the potential for drawing conclusions.

Even though co-creative citizen social science employs more interactive and flexible research approaches, it is beneficial to begin considering and defining the methodological approach and data types being utilised, along with the reasons behind these choices. It is essential to continuously document these decisions from the outset, as this documentation will aid in later phases of the research and in the writing of scientific publications (Gold et al., 2023; see also the Data Analysis section below). Try to ask and answer the following questions:

- **Which participants are included in the project, and why? Are there any important participants missing? How does the sample of participants impact your project?**
- **What methods and tools are being used for data collection, and why?**
- **Are any physical or technical support tools, such as an App, being utilised?**
- **What is the social and cultural context for your data? For instance, which location have you chosen for the study? Is your data geo-localised? How does the context influence the study and its findings?**
- **What is the current (and anticipated) geographical coverage? (Inspired by Gold et al., 2023)**

Many discussions in and around citizen science concerns data quality and challenges related to a perceived lack of procedures for data recording and documentation (Balázs et al., 2021; Gold et al., 2023). The YouCount project also found it difficult to agree on a shared documentation system for the multiple case studies. The researchers had different backgrounds, which made it challenging to find good documentation procedures. Some were also not used to document qualitative and observational research. The focus on flexibility and co-creative activities added to the challenge. Additionally, the work-intensive nature of co-creative activities left little time for documentation work during the implementation phase.

The absence of comprehensive documentation from the outset and throughout the early research activities can pose challenges later, in recalling the specific content of stories and conversations during the data analysis phase. In YouCount, a lack of detailed documentation resulted in varying levels of data detail, which made the cross-case analysis more challenging.

It is therefore advisable to consider and decide upon documentation procedures at an early stage and to allocate time for thorough documentation of your experiences and research data during the implementation phase.

There are several documentation tools for co- creative citizen social science and these can be developed together with youths and stakeholders to secure relevance of the research. We have listed some possible useful documentation methods in the box below based on the YouCount project which may be relevant when conducting youth citizen social science.

Photo by Nagore Valle

Possible Methods for Data Documentation in Youth Citizen Social Science

- Audio recording and transcripts, which can include automatic transcription or language translation.
- Field notes; develop a template for field notes to ensure systematic recording and consistency across project partners.
- Case descriptions in standardised poster templates (D.2.2: Norvoll et al. 2022 D2.2).
- Templates for summarising experiences, with guidance from the responsible research team on what should be included. (Case summary reports, see D.3.1: Pataki et al., 2023A and D.3.2: Pataki et al., 2023B).
- Minutes from meetings; summarising the actual findings and discussions while you have it fresh in your mind.
- Matrices.
- Questionnaires, surveys, or forms.
- Evaluation forms, capturing takeaways from meetings.
- Pictures or recordings.
- Digital devices such as an app. (See D1.3., Ridley et al, 2023; D3.2., Ridley et al., 2023).

Other Documentation Practices in Citizen Social Science

The participatory and collaborative nature of citizen (social) science creates a need to apply a broad and more pragmatic approach to documentation practices and means for communicating the research (Meyer, 2021). While scientific publications are important for professional researchers, lay people are not educated for scientific writing or may be not interested in writing up the research and innovation activities in terms of scientific papers. They may prefer spending their free time on something that is more fun or creative. A broad perspective on documentation is even more important in inclusive youth citizen social science that is trying to engage young people and communities often further away from the scientific culture.

Documentation in citizen science is found to consist of different practices and various formats such as inventorying, writing, translating, listing, drawing, picturing, illustrating, filming, editing, narrating, publishing (Meyer, 2021). These may have different objectives and functions and combine two different genres: technical and factual descriptions and poetic and aesthetic narration, with personalised accounts, humour, and dramatisation. All these methods may be relevant in a youth citizen social science project.

For example, as described in the Introduction chapter, participatory communication is embedded in the YouCount project from the start. It is an integral part of the project by representing "the stairs" of the house and essential for communicating the research to others. Through YouCount, we also tried out different documentation methods for youth citizen social science which may be relevant in other projects. These are elaborated on in the Communication paper. The documentation methods had considerable value in creating more understanding and insights into young people's perspectives, experiences and research processes when conducting youth citizen social science. They were also important for the young citizen scientists' engagement in science because they were more playful and enjoyable and less dependent on science expertise for communicating and dissemination of findings (D.4.4: Lorenz et al., 2023; Meyer, 2021). Such documentation methods, for example a physical exhibition, were also helpful to increase interest in the project and findings among busy stakeholders because they were more vivid and easier to grasp than scientific papers.

RESEARCHERS' PERSPECTIVE

Our exhibition provided a tangible representation of the young people's work, leading to a strong sense of accomplishment. They expressed their initial doubts and uncertainties but were surprised by how far they had come. The opportunity to showcase their data and see the results brought about a sense of pride. – Researcher from YouCount Norway

The work with the exhibition in relation to the final conference was also useful to strengthen collaboration in the team, create safety for the young citizen scientists and enable more safe ways of communicating research in an European setting (D.5.3: Norvoll)

Figure 13. *Co- working with the final conference exhibition / Photo by Reidun Norvoll*

To summarise, the broadening of documentation practices are work-intensive but crucial parts of youth citizen social science and should be integrated as part of designing a project. It is a need for more acknowledgement and recognition of the heterogeneity of documentation in citizen science by mainstream research institutions and research funding organisations.

Key Takeaways

- **Include a broad perspective on documentation.**
  - Choose a combination of documentation methods that will support your project goals, scientific inquiry and public engagement.
- **Consider and agree on documentation procedures before the empirical research begins.**
  - Spend time to discuss the best methods and secure necessary training for young citizen scientists and researchers who are coming from a different scientific background. This will also enhance scientific quality.
- **Consider best open science practices in your citizen social science project.**
  - Plan for open access, open data and transparent research and balance confidentiality needs with accessibility. Consider critically, when and how should you make the raw data open. What will benefit science? Are there other ways to communicate your research?

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Open Science | European Commission (europa.eu)

Data Analysis as Part of the Co-Creative Process

Authors: Tomas Kjellqvist, Lina Rådmark, David Borgström, Reidun Norvoll & Julie Ridley

As most readers will know, the choice of method of data analysis in any given social science study will depend on the discipline, the research topic and aim, as well as the methodology and type of data collected. While this chapter primarily focuses on thematic data analysis, other interpretative, phenomenological, or narrative approaches can also be utilised (see, for example, Mihók et al., 2023; Pataki et al., 2023A). The same considerations apply to citizen social science, with the distinction that data analysis in this context is a co-creative and participatory process involving both academic researchers and participating citizen scientists.

The reason for involving citizen scientists in the data analysis is simple; they sit on unique understandings of the local situation and phenomena that are still hidden to the academic researchers involved in the project. Their contribution, therefore, is important not only to ensure meaningful participation, but also to fully understand the data. Academic researchers in turn have theoretical understandings and scientific know-how, which, of course, is also necessary for rigorous and systematic data analysis.

This chapter will outline how to conduct participatory data analysis of qualitative and quantitative citizen social science data, using concrete examples from the YouCount project. Participatory data analysis in this context is understood as a collaborative process where academic researchers and, in the case of YouCount, young citizen scientists work together to interpret and make sense of the data. This collaborative effort is recognisable within the framework of the House of Youth Citizen Social Science, particularly on the second floor.

Analysis Starts at the Beginning of the Project

In a way, making sense of the data in a co-creative youth citizen social science project starts at the very beginning of the project. When preparing the formulation of the research question, before the actual research has even started, it is important to involve a core group of young co-researchers, and to allow them to share inputs and voice concerns about how the research questions are framed and formulated.

Open, clear and dialogic communication is vital in this initial phase. As a researcher, it is crucial to be reflexive and open to adapting to the ideas and suggestions of the young citizen scientists. However, it is also important to establish clear roles and responsibilities. Ultimately, the researcher bears the responsibility for ensuring the scientific quality of the research questions, data collection, analysis and conclusions.

The research questions, once formulated, guides discussions and decisions around both data collection and analysis. Our recommendation from the YouCount project is to be pragmatic when selecting methods for data collection, bearing in mind the complexity and work load in the forthcoming analysis. Participatory data analysis takes time, and remember, all of these considerations must take into account the points of view of the young citizen scientists.

In some studies, depending on the methodological design, doing a pilot study can be beneficial as it makes it possible to check the relevance, reliability and validity of the design, e.g. test different ways of collecting data. If a pilot study is done, it is of course critical to then take the young co-researchers' feedback into account when designing the final study. This was a key starting point when developing both the YouCount app, as well as other methods for data collection in the project (D.1.3: Ridley et al., 2021). By ensuring that the study design, including methods for data collection and analysis, is feasible, you increase both the relevance and quality of the data, the possibility of systematically analysing that same data, and the likelihood that the young citizen social scientists find their participation meaningful.

Preparing and analysing the data

Preparing the Data

An important first step in all data analysis, including in participatory data analysis, is to clean, or prepare, the data. That is, to eliminate irrelevant or faulty data, and then sort

the remaining data into a manageable set. In youth citizen social science, the process of cleaning the data for analysis is often led by academic researchers, but whenever possible, should also involve contributions from the young citizen scientists. Since the data collected is so close to their everyday lives, the young people are in a unique position to understand and interpret what is, and is not, relevant to the analysis.

In the YouCount project, one such cleaning process involved sorting all the various quantitative data provided in the YouCount app and delete observations that did not come from the young citizen scientists, adjust misplaced or misspelt observations, and to validate each observation as correct and relevant. The cleaning process took a long time, but resulted in reliable, rich and valuable data (see D.2.3: Ridley et al., 2003).

A similar process for qualitative data involves doing an initial sorting before subjecting the data to more systematic analysis. In the YouCount project a large portion of the qualitative data was photos from workshops and meetings depicting posters, post-it notes, drawings and other forms of "unstructured" documentation. An important first step in analysing this data was to sort it into broad thematic categories, often together with the young co-researchers. Only then, a more systematic round of participatory data analysis was possible (D.3.1: Pataki et al., 2023).

Qualitative Participatory Data Analysis

After these initial preparations, the next step is to co-analyse the data together with the young citizen scientists. An example of such participatory analysis is the coding of qualitative data, such as questionnaires or interview transcripts. Coding can either be conducted as an exercise where the coders – academic researchers *and* young citizen scientists – start by reading, discussing and categorising the statements without any predetermined themes. Comparing the different outcomes in a discussion would eventually lead to a common ground on which codes to use or to a problematisation that would require further studies through comparison. It should be noted that a free-text response may contain several statements that could be assigned different codes. The final sorting of the dataset into groups that have received similar codes would, in some cases, require a weighting of the importance the codes have for the research question.

Deductive coding is a different approach where the researchers, possibly in discussion with the core group of young citizen scientists, have decided on a set of codes to use. The tasks in the coding exercise would then be to sort the free-text statements into groups according to the predefined codes.

In YouCount, the researchers, with the assistance of some young citizen scientists, utilised qualitative data coding (e.g., minutes, transcripts, and case summary reports) in the cross-case data analysis of experiences, social inclusion, and the evaluation of participation outcomes and impacts. For instance, in the evaluation study (D.4: Saumer et al., 2023), numerous interviews were initially categorised into broader predefined themes reflecting common outcomes in citizen science (such as "scientific knowledge"), before further division into sub-category topics (such as "citizen education"). The coding process was facilitated through the use of qualitative data analysis programs, such as Nvivo, Atlas.ti, and others.

Pseudo-Quantitative Data

When it comes to analysis of pseudo-quantitative data in citizen social science more generally, a well executed coding exercise provides opportunities to quantify free-text responses to make it possible to integrate them into the quantitative analysis. Additionally, qualitative data can be utilised in quantitative analysis through methods such as tallying response frequencies to specific questions or counting keywords within responses.

Quantitative Participatory Data Analysis

The YouCount project employed a mixed-methods approach to gain deeper insights into young people's experiences with social inclusion and the outcomes of their participation as young citizen scientists. This encompassed the collection of quantitative data through the YouCount app and questionnaire data in the process evaluation study (further details are provided in the Evaluation chapter). Quantitative data analysis often necessitates the use of computerised statistical tools, ranging from Excel to professional packages like SPSS, SAS, etc. There are also open-source opportunities available, such as the programming language R, although it may entail a learning curve. For semi-skilled R-programmers, there are possibilities to develop user interfaces that enable participatory quantitative data analysis. However, this would require preparations that typically exceed the time constraints of most research projects. Ordinarily, quantitative analysis would be conducted by the researchers using statistical tools, and followed by a visualisation and presentation for discussion with the young citizen scientists. During these

discussions, the analysis progresses from the technical stage to one of interpretation and explanation.

Simpler statistical associations, like examining how a set of qualitative responses correlates with factors such as age, gender, residential area, or other distinct characteristics, could be conducted through participatory exercises. In these exercises, the young co-researchers can engage in sorting the material. This sorting process can be facilitated using digital tools or preferably through hands-on exercises using printed materials. For instance, if the material is in print, the group could divide tasks to identify specific associations, such as sorting a particular cluster of free-text responses into piles based on gender, age groups, and so forth.

Oops!

Despite careful planning, the YouCount project should have located more time in practice to conduct participatory analysis. As is common in research, we spent too much time on data collection and too little on co- analysing the data together with our young citizen scientists.

The responsibility for reporting the findings from the participatory data analysis lies with the professional researchers. It is crucial that all participatory processes are thoroughly documented for future reference. This documentation should encompass a detailed account of the process, including a discussion on challenges, problematic aspects and the items that sparked the most debate.

Why Participatory Data analysis

The process of conducting participatory analysis is undeniably more complex. It encompasses not only a research endeavor but also functions as an educational and dissemination process, aligning well with the objectives of citizen social science. Adequate budget allocation during project preparations is essential to accommodate the additional time required for co-creation. However, the benefits are substantial: a meticulously executed participatory process is likely to yield more reliable and valid data, resulting in findings that are more pertinent. Moreover, the transition from research to impact may be considerably expedited.

Adult researchers sought opportunities to meet and discuss their own learnings. Photo by Nagore Valle.

4 Communication in Youth Citizen Social Science

Authors: Patricia Canto-Farachala, David Borgström, Alexandra Czeglédi, Philipp Hummer, Cathrine Marie Skovbo Winther & Nagore Valle

As we explained in Chapter 1, dialogue is a key pillar in youth citizen social science inextricably linked to the research process and its ethical dimension. This chapter is about how communication developed in practice, highlighting key learnings. As in the other chapters of this handbook, our aim is not to provide recipes nor one-size fits all approaches, but to inspire you when you're wondering where to place your communication efforts and resources in a youth citizen social science project.

Our short answer? Everywhere! (at the micro, meso and macro levels -see Figure 3, in Chapter 1). But as we hope to convey, it is more about shining the light on the communication process through reflexive practices, than about putting in additional resources through trendy or expensive communication tools and products, which must not be an end, but adopted as a result and in the service of the wider dialogue developing in the project (see also Chapter 3 on documentation) .

Bringing Scientific and Local Knowledge Together

At the **micro level**, communication is dialogical and in person. It happens at the core of the research process, where "professional" researchers and young citizen scientists engage in dialogue among themselves within the research teams and then reach out to stakeholders and other community members in Living Labs and Dialogue Forums. Chapter 3 on carrying out a youth citizen social science project, particularly on the co-creative approach to young citizen social science working with young people and engaging stakeholders deals with the micro level. This chapter shines the light on dialogical communication as a way of supporting, enabling and protecting the research process.

Adopting a dialogical approach *does not* require researchers to abandon their scientific expertise. Instead, it can be understood as a both-and approach, wherein scientific and local knowledge are mutually reinforcing, rather than mutually exclusive. A dialogic

approach represents a shift towards a more communicative and collaborative research paradigm, one that recognizes the importance of diverse voices and perspectives in generating insights and solutions to complex issues. It acknowledges that the expertise of researchers, derived from years of rigorous training, can and should interact with the contextual, experiential knowledge held by young (or other) co-researchers in order to generate new knowledge and social innovations that can address the social problem being addressed. *What did we learn from practice?*

A Safe Space for Meaningful Dialogue

Creating the right conditions – both physically and socially – was identified as a communicative key to success by both researchers and youth.

The Physical Space – The Foundation for Dialogue

The first step is to find a physical space to meet in, preferably somewhere the young citizen social scientists know and feel comfortable. If possible, let the young people choose the location for the first few meetings. Once social barriers start coming down, you can be more creative in how, when and where you meet. Try to find natural learning environments like schools or universities, where everyone is mentally primed to learn and share knowledge from the get-go.

Building Trust and Rapport

A second step is to develop trust and rapport within the project group, in the YouCount case, between the young citizen social scientists and the academic researchers. Developing trust with youth requires a nuanced approach to dialogue and communication. Without it, meaningful co-creation is impossible. Firstly, it is crucial to listen actively, valuing the youths' perspectives, and creating a space in which their voices are heard and respected. Secondly, it is important to encourage open and honest discussions, validating young people's experiences, ideas, and concerns. Thirdly, work on fostering transparent communication by explaining decisions, processes, and objectives clearly, ensuring the young co-researchers feel included and informed. Flexibility is key here – researchers must be willing to adapt plans based on the young co-researchers' input, showing that youths' contributions genuinely influence decision-making and outcomes.

Ditch the Lingo!

Another important thing for researchers to keep in mind is to ditch the lingo! Being part of a research project can be a daunting experience for citizens, especially when they are a young person, and it is easy to become overwhelmed by scientific terms and concepts. Using informal and even personal language is essential to enable understanding and active participation. By adapting their language and carrying themselves in an informal way, researchers help in creating an inclusive environment where everyone feels comfortable participating.

How to create safe spaces for meaningful dialogue

- **Don't be afraid to be personal.**
  - Sharing an anecdote or some of your interests outside of academia can remind participants that you are really just a normal person working as a researcher.
  - This helps to create an informal and egalitarian environment.
- **Don't underestimate team-building activities and ice-breaker games.**
  - They help to lower social barriers, especially at the beginning of the co-creative process.
- **Share meals.**
  - Having lunch together during meetings is a great way to cultivate trust and a tangible sense of equality and togetherness within the project group.

Be Open to Different Ways of Doing Things

Engaging in meaningful dialogic communication means that all participants must step out of their comfort zone: young citizen scientists learn how to engage in scientific inquiry and researchers adapt to the youths' lives and ways of doing. Seeking inspiration from participatory design processes is essential to open up new perspectives and to reach tacit and latent knowledge. Here are some different ways of engaging in dialogue with young people as citizen social scientists during the research process.

Open Formats and Posters for Data Collections

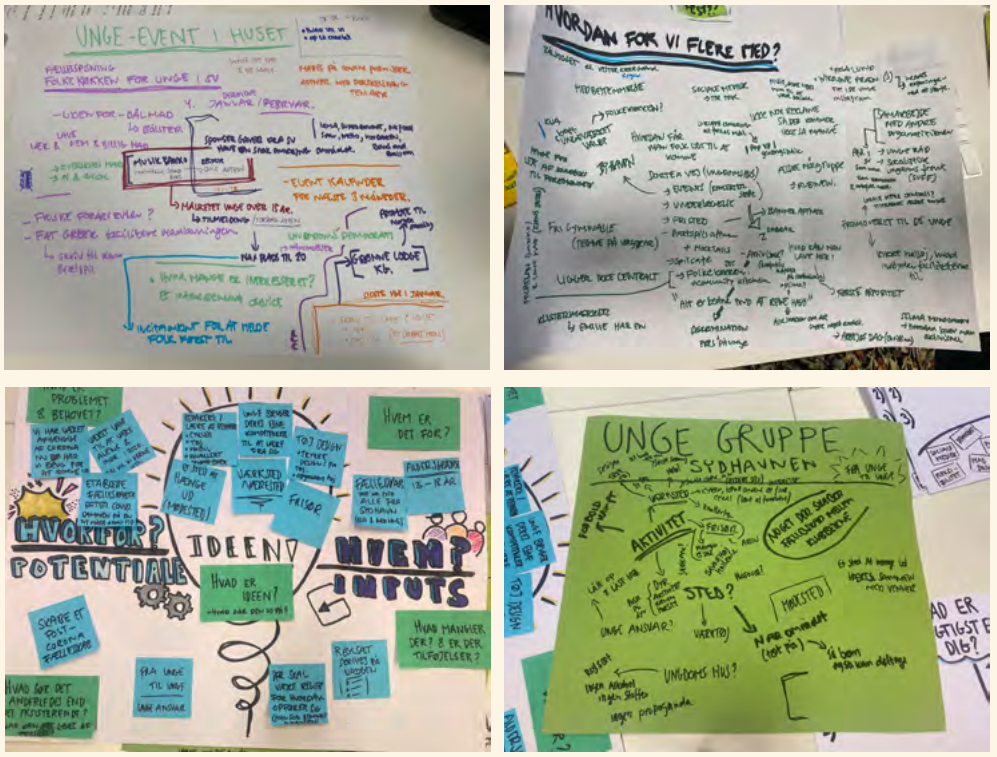


Figure 14. *Youth Citizen Scientists' open field notes in the Danish Case*

YOUTH PERSPECTIVE

The posters were a great way to follow up on and document our previous conversations. They work as reminders for everyone. When we come back and see the posters on the walls, we can read about what we talked about last time.
– Young person from YouCount Denmark

When doing data collecting through, for example, participatory observations, recording sessions or taking field notes in a book is not necessarily the best way to proceed, because young people can feel watched or pushed to say things they believe is what researchers want to hear. Instead it can bring positive notions to work with open formats where the youths' words are noted onto a big piece of paper, so they can see that their thoughts are recognized.

Furthermore, the open formats create a tangible object that the youths can build upon, helping them remember earlier conversations or interactions.

Stimulating reflection – using the local environment as a dialogue tool

When working with youth it can be an advantage to invite them out into the local neighbourhood and talk about the challenges in the places where they experience them. Especially in educational settings where youth are often used to being inside of the classroom. When we facilitate a setting where youths can investigate the local environment, and are able to have a dialogue around their experiences, it has the potential to stimulate reflection and create new conversations about the area. A lot of the cases have used the opportunity to go outside and let the young co-researchers show and tell, either through photos or making them interact directly with the environment.

This has brought other perspectives to the table. One thing is all the tacit knowledge that is hidden in certain areas in a neighbourhood that only the youths carry, another thing is that the local environment can exploit new possibilities as well.

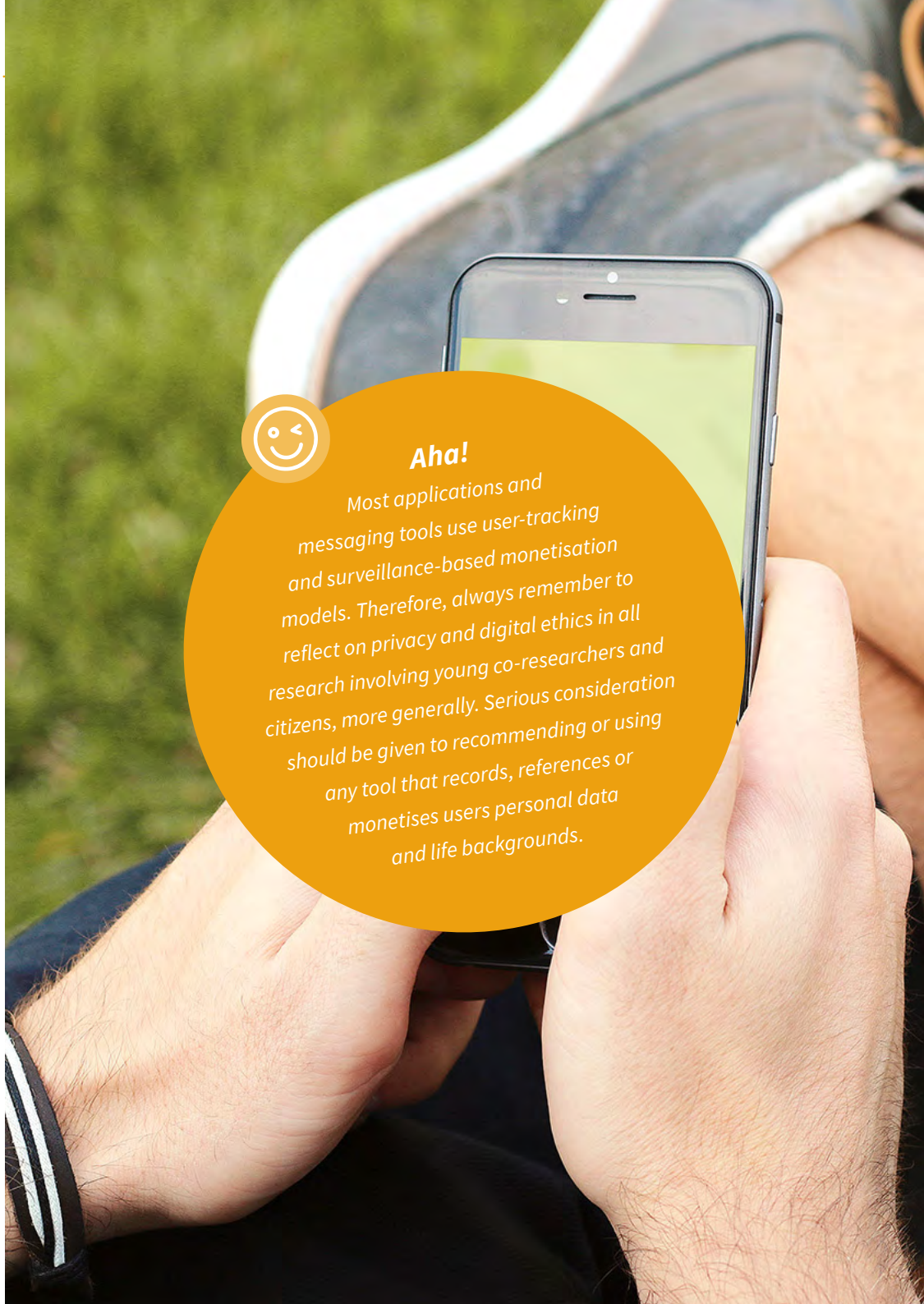
YOUTH PERSPECTIVE

The field trip, when we cycled around Sydhavn and engaged with locals, was the highlight of the whole YouCount project. It was interesting to interact with different people in a divided area, as they brought new perspectives to the table." – Focus group interview, Valdemar, co-researcher.

In sum, going outside, rather than relying solely on indoor settings, such as classrooms or universities is a good way to stimulate knowledge sharing. Learning is also fueled by trying out creative research tools like open field notes for data collection, walk-alongs with policymakers in the park instead of conducting interviews and or movies or photo exhibitions to communicate with local stakeholders and other young people in the community,

Combine In-Person and Virtual Dialogic Communication Wisely

While in-person dialogue, where participants can pick up on body language and non-verbal cues, fosters deeper understanding and helps in building personal connections and trust among participants, dialogue can also take place in virtual settings. Using collaborative digital tools, like white boards, in different stages of the research process for gamification and co-learning can work well. Do not, however, overestimate the potential and usefulness of these tools. Digital fatigue exists, even among younger generations!



Aha!

Most applications and messaging tools use user-tracking and surveillance-based monetisation models. Therefore, always remember to reflect on privacy and digital ethics in all research involving young co-researchers and citizens, more generally. Serious consideration should be given to recommending or using any tool that records, references or monetises users personal data and life backgrounds.

YOUTH PERSPECTIVE

The digital meetings felt more like lectures, and our participation felt more passive than during the in-person meetings. We were encouraged to be active and engaged, but it was difficult during online sessions.
– Young person from YouCount Sweden

The choice between in-person and virtual meetings depends on the specific needs and goals of the research project and the activity in question, as well as the preferences of the participants. A hybrid approach combining both formats strategically to leverage the benefits of both, was adopted in YouCount. Don't forget that some participants may have no access to or capabilities to use technological tools. In these cases, analogue posters, pamphlets, and brochures can replace social media posts and online collaborative tools.

Key Takeaways

- **Cultivate open and inclusive dialogue.**
  - Actively listen to the concerns and ideas of the young citizen scientists, demonstrating a genuine interest in their perspectives.
  - Ensure that language is respectful, inclusive, and free from judgement, creating a safe space for diverse voices to be heard.
  - Use ice-breaker games and team-building activities to foster a sense of trust and collaboration, creating a safe space for diverse voices to be heard.
- **Empower and encourage active participation.**
  - Actively encourage and empower the young co-researchers to take leadership roles in discussions and decision-making processes.
- **Embrace collaborative and innovative formats.**
  - Use collaborative formats like focus groups, workshops, and co-creation sessions to encourage dialogue, knowledge exchange and mutual understanding.
- **Adapt and iterate as you go.**
  - Be flexible and willing to adapt and iterate the dialogical processes based on feedback and emerging ideas and needs, ensuring a dynamic and responsive approach to communication.
- **Do not prepare overly structured interactions.**
  - Overly structured dialogues may stifle creativity and spontaneous interaction. Ensure that discussion topics and goals emerge through mutual interactions with the co-researchers as part of a shared decision-making process.
- **Facilitate, do not dominate the dialogue.**
  - Refrain from dominating the dialogue or sidelining the voices of young people and stakeholders. Facilitate equal participation and contribution from all parties.

Aha!
Young citizen scientists are expert facilitators of dialogue with other youths!

RESEARCHERS' PERSPECTIVE

We always prepared agendas with topics we wanted to discuss, but in the conversations with the young people, unexpected things happened, and we had to set our agendas aside and discuss what the young people wanted to – and needed to – bring up.
After each meeting, I went home with a lot of insights as a researcher, but also emotional insights into what it's like to be young in a place like Botkyrka."
– Researcher from YouCount Sweden

YOUTH PERSPECTIVE

It's easy to talk about socia inclusion, but in YouCount, we actually felt included, not just as passive participants but as co-researchers who could affect decision making.
The adult researchers tried to listen to us and were open to adapting to what we wanted to discuss.
– Young person from YouCount Sweden

Crazy Eight, Bingo and Pizza - Youth Citizen Social Science in Oslo, Norway
Photo by Sara Plassnig

Widening Participation and Keeping it Dialogic

Hybrid forms of communication at the **meso level** (combining dialogic and one-way communication) must be encouraged in citizen science projects since they offer the potential to widen the participation scope without losing dialogue's transformation potential. At the meso level dialogue cannot have the same intensity as in the micro level, but must try to keep participatory communication's dialogic essence.The meso level can develop in websites and the social media, blog posts, apps, and all types of virtual platforms and meetings, like webinars. Also in books, journals and magazines and in spaces where moment in time dialogues take place, such as conferences and seminars.

Oops!

Time really does fly when you are having fun. Remember to prioritise writing with the young co-researchers while they are still participating in the process, and document everything for future pieces of writing.

The communication team in YouCount took inspiration in Responsible Research Communication (D.5.7: Canto-Farachala et al., 2021) to think about our main communication tools and platforms at the meso level. How can we make them dialogic? This concern was present from the start of the project for some researchers:.

RESEARCHERS' PERSPECTIVE

We should adopt a two-way-communicative approach to our use of social media, emphasising the possibilities for engaging different stakeholders in dialogue, and getting their input to the project, rather than viewing social media as just a way of sharing messages and redirecting people to the website. – Researcher, YouCount

One way of incentivizing dialogue is by inviting people to continue a conversation presenting social media posts that already incorporate some sort of dialogue among participants. For example, our "Meet YouCount's Early Career Researchers!" campaign introduced young co-researchers and asked them to share their view on how science could be more inclusive. Their answers raised much interest since they are young researchers exploring innovative ways of doing research. Also, each issue of the YouCount Newsletter presented young co-researchers reflecting on how they were experiencing their participation in the project.

Webinars are great examples of spaces where all the dimensions of responsible research communication can be considered. In a series of knowledge-sharing webinars conducted by YouCount early in the project we learned important lessons, among them that we needed to use more humour! (D.1.5: Murray et al., 2023)

How young citizen scientists felt from working with researchers. Visual Capture by Ruth Graham.

Key Takeaways

- **Dialogue in virtual spaces needs facilitation and is costly.**
  - Be ready to commit energy and resources to try to engage participants and keep the dialogue going.
- **Inclusion is difficult to balance.**
  - Be ready to hear that your website is too "simple" (you avoided jargon) and that it is too "academic" (you included some concepts from the literature). You can address this by having two layers: a free, airy, easy to read front page and a backpage with the more technical details of the project.
- **Co-creation is not always realistic.**
  - Choose when and how to include young co-researchers in co-creating the project's website, social media channels, webinars, and other. Time frames, languages and work overload can act as barriers. Choose wisely to make the most of it for the project and for them.
- **Training in science communication is important.**
  - Do not assume that all researchers have skills in science communication. Plan for training early on to both, engage them in meso level communication activities and to bring "project" and "case" level communication closer.
- **Engaging project participants in communication activities is not easy.**
  - They are already engaged in dialogic communication in their cases and being asked to also do so at the project level can result in a sense of work overload.
  - Design a good way of connecting what is going on in the cases and the project's communication tools and channels (see blog in the following section).
- **Finding time to engage in writing scientific papers is difficult.**
  - Prioritise writing with young co-researchers
  - Documentation is key for future writing tasks.

Disseminating Information and Findings to Key Audiences

At the **macro level** dialogue is no longer possible and communication adopts a one-way approach. Press releases, speeches, newspaper articles, newsletters and podcasts make up this level. These activities are more likely to develop at the local level and target local audiences.

Other communication tools like blog posts and social media have an inherent dialogical dimension but as mentioned earlier they need an important investment in time and resources to keep them alive. However, they are also important tools to disseminate project results and to bring the voice and "flavour" of the cases to an international audience. Social media can be used to broadcast news, stories, and information about events and publications, to identify new stakeholders and build networks. It is a great way to link up with other projects doing citizen science and citizen social science and to keep updated on their latest developments. In this sense, social media can act as a link between what is happening in the project at the local level and global trends and activities.

Remember that each social network works best with a particular audience and that content can't always be used in the same way in the different channels. Moreover, consider data ethics, ownership/country of origin and effects of user tracking. Most social networks are based on user surveillance and data monetization, and as is well known, can have a wide range of negative effects on participants' mental well-being, especially for younger people.

A great source of content for our social media channels in YouCount was our Blog. It was conceived of as a space to share stories from the project. The ideas for the first posts were devised by the communication team in collaboration with researchers and dealt with general aspects of the project and how we were dealing with them. Later, when the local research teams settled, the stories began flowing more easily and the blog became a logbook that includes interviews with members and stakeholders, chronicles of events taking place in different locations, and the voice of young citizen scientists.

How to write a great post for a research blog:

1. **Think about your audience.**
2. **Write one post per topic.**
3. **Structure your information well.**
4. **Think on an attractive title.**
5. **Provide added value.**
6. **Add multimedia elements, always backed by GDPR rules.**
7. **Synthesize.**
8. **Try to be brief.**
9. **Include hyperlinks.**
10. **Call for interaction.**
11. **Use keywords.**
12. **Check your spelling.**

Note that the most creative and innovative communication activities are taking place at the case level. YouCount featured participatory science fiction films, documentaries, photo exhibitions and museum installations, among others. Take a look at our Toolkit! Communication tools at the project level must do a good job at making these initiatives known among an international audience.

Last, and by no means least. Citizen Social Science projects need thorough

Aha!

Draw up a "pictures and video" policy and send it to all participating partners so that they are aware that they need informed consent for any pictures they send for newsletters, websites or blog posts. And make sure you are familiar with the specificities regarding under age participants.

documentation, which can be demanding and difficult to follow through. Every time that you share anything in writing, audio or video (or in all at the same time!) you are documenting your project and can go back to these materials for many different purposes. Moreover, disseminating early results on an ongoing basis contributes to your project's commitments to Open Science. (See the subsection on Documentation in Chapter 3).

FURTHER READING

Canto-Farachala, P., Norvoll, R., Brattbakk, I., & Budryte, P. (2023). Participatory communication and citizen social science: Lessons learned and new ethical and political challenges. *Etica & Politica / Ethics & Politics*, XXV, 2023, 2, pp. 129-151

Canto-Farachala, P., & Larrea, M. (2022). Rethinking the communication of action research: Can we make it dialogic? *Action Research*, *20*(2), 199-218. https://doi.org/10.1177/1476750320905896

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Young citizen scientists met and bonded at the YouCount Consortium Meetings, here in San Sebastian, Spain. Photo by Nagore Valle.

5 Ending the Project and Leaving the Field

Author: Reidun Norvoll

An important aspect of co-creative youth citizen social science is how the researchers should leave or extricate themselves from the youths and the local community in a good way. There are no fixed guidelines for this part of a project as this will depend on the local context and participants. Still, it will be important to think carefully about the closing process to secure scientific quality, to end the relationships in an ethically sound way (Hammersley & Atkinson, 2019), and to enhance sustainability of the innovation activities after the project ends.

The closing process is even more important in co-creative and collaborative citizen social science projects that last over a longer period of time and involve mutual and more personal relationships between the researchers and participants. The social bonds were an important aspect for the young citizen scientists that participated over a long period in the YouCount project (D.4.1: Saumer et al., 2023). Both the participants and researchers may therefore find it hard to end the relationships and work that you have started and would like to continue.

RESEARCHERS' PERSPECTIVE

When YouCount is over, what do we do then?
Is it ethical to just, sort of, leave the young people?
How can we end the project in an ethical way?
These are hard ethical questions.
– Researcher, YouCount

In this chapter, we will therefore describe some key points to consider in the closing phase of a project including the needs to take good care of the young people that are constantly coming and leaving the project over time.

Managing Collaborative Relationships

Co-creative or participatory citizen social science has many similarities with traditional ethnography where researchers can live in the community they study for a long time (Hammersley & Atkinson, 2019). In YouCount, many cases have for example worked with the youths and local stakeholders over a period of 1,5- 2 years, some even longer. The nature of collaborative citizen social science increases the need for awareness of the relational dimensions and to finish or continue these relationships in a good way for the benefits of the youths and future collaboration. A first step is that all participants need to bear in mind that a project is time bound and will end at some point (Byantropologene & OSIRIS, 2023). This means that it is essential to integrate the process of leaving from the start of the project. It should be clear that participation is voluntary, and every participant is free to leave the project at any time. This information will help manage expectations and demands from both sides.

Still, as described in other chapters, keeping, and maintaining relationships are crucial for long-lasting science and society collaboration. It will therefore be important to consider what can benefit the collaborative relationships over a longer period than just one project. A short project perspective therefore needs to be balanced with a longer outlook. It may also be helpful to facilitate a gradual closing process where both the researchers and participating youths get some time to be prepared for the ending of the project. For example, in YouCount, many case partners organised for some continuous contact or closing events in the last part of the project and after its end.

Mutual Acknowledgements

Acknowledging participants for their contributions is an essential part of citizen science. This can for example be seen in the ten principles for citizen science developed by ECSA as presented in Chapter 2: Principle 8: "Citizen scientists are acknowledged in project results and publications." There are many ways to acknowledge. The young citizen scientists and local stakeholders can for example join as co-authors or co-presenters, or be acknowledged in a visible way in scientific papers or presentations by the researchers. It is also possible to use certificates, diplomas, or to provide a written or oral reference, and more.

Such acknowledgements are especially important in inclusive youth citizen social science, and in projects involving young people with disadvantages, because the participation can be used to increase social capital. The youths may for example use the certificate or reference to build their CV's or increase their social network when applying for jobs or education. If the CV is "empty" (for example, because you are a newly arrived refugee), working in a research project as a young citizen scientist may serve as a gate-opener to the job market. In the YouCount project, we also experienced that some of the young people built their local social network and got job-offer because of their participation in the project (D.4.1: Saumer et al., 2023 and D.4.4: Lorenz et al., 2023).

However, in collaborative projects, acknowledgement is not a one-way process but may also have a mutual side. The young citizen scientists and stakeholders might also like to express gratitude or acknowledgement to the project and its researchers. It is therefore important to open spaces for this mutual appreciation when this occurs. Farewell goes both ways.

Mutual Learning Approach to Evaluation

As described in the Evaluation chapter, evaluation of the project and its outcomes is a key aspect of citizen science. Traditional citizen science has often focused on learning outcomes for the citizen scientists. In youth citizen social science, we are also looking for broader social and political outcomes for the individual youth and community (see chapter Impact, D.4.4: Lorenz et al., 2023).

Further, as illustrated by the kite in the house of citizen social science, evaluation can take shape as a mutual learning approach where the participants consider the learning done during the project and summaries the main takeaways (Gold et al., 2023). Discussing the lessons learned is a good way to end a project. It can also be used to inform oth-

The young citizen social scientists in the Norwegian case translated their findings into miniature models before they curated a full-size exhibition in the local museum. Photo: Ildfluene / Dichino Nguyen

ers who are interested in conducting similar projects. Evaluation can thereby contribute to capacity building in citizen social science.

Secure Sustainability and Impact

Securing sustainability is part of supporting long-term impact and the exploitation of the project (Gold et al., 2023; D.4.4: Lorenz et al., 2023).

As elaborated later, impact and sustainability work can be done in several ways. One way is to identify the targeted stakeholders that are important for impact and sustainability of the project and work closely with them. Usually, it is easier to create impact when you are working with a larger group of identified stakeholders (Reiersen, 2022). Another way is to consider if the project can continue or escalate in the future through new research and additional funding. A dissemination-, exploitation,- and communication plan (DEC plan) describing how the results can be shared with the scientific and citizen science community as well as the broader public may also support this work (D.5.7: Canto-Farachala et al., 2021 and Chapter 4).

Further, the young citizen scientists and local stakeholders can be involved in the

implementation of results into concrete actions and policymaking or in the sharing of reflections about the research and innovation process to inform or improve future initiatives. It is also possible to discuss with citizen scientists and stakeholders how the results can be translated into a knowledge platform for future policymaking, actions or policy (Gold et al., 2023). For example, in the YouCount project the cases used local living labs, national workshops and a final conference as tools to co-promote sustainability and impact. In addition, some of the closing meetings were focusing on creating a long-term impact of the project and discussing how the project work could be taken further locally or on a European level.

Taking Care of the Research Team and Participants

While young people in risk of social exclusion can be resourceful and fully capable of participating in citizen social science, some may also be in a more exposed or dependent situation due to poverty, lack of formal citizenship, disabilities and more. Such factors may increase vulnerability in the closing part of the project when the project resources end and researchers leave. It is therefore important to mitigate feelings of being "abandoned" and to consider if the active participation and benefits can be continued in some ways on a local level.

It may also be hard to leave for the researchers. The relationships are often rewarding, and it may be hard to break connections. Some may find it hard to leave if you have the sense of "unfinished business", there is still so much you would like to do and achieve but the time is out (Thomas, 2023). Temporary employed researchers may also worry about what happens after their engagement period has ended. The project leader should therefore also consider how to support the researchers and students during the closing part of the project (see Chapter 4).

A respectful writing up from the project and how you frame the participants (e.g., youths) are also important. All personal data needs to be processed in a proper way and deleted in due time according to ethics approvals.

Key Takeaways

- **Be mindful of the timebound character of the project.**
  - Plan for the end of the project and long-lasting collaboration from the start.
- **Make sure all leave the project with a positive experience.**
  - This can be done through acknowledgements, co-evaluation and closing events.
- **Work for sustainability after the project ends.**
  - Make a plan. Include youths and key stakeholders that can increase impact and discuss continuation of the project or results, for example in new research proposals.

FURTHER READING

Thomas, G.M (2023) Unfinished business: a reflection on leaving the field. In: Smith. R.J & Sara SA. Delamont (eds). ***Leaving the field. Methodological insights from ethnographic exits***. Chapter 4: pp.74-85. Manchester: Manchester University Press,. doi: 10.7765/9781526157669

Bracken-Roche, D., Bell, E., Macdonald, M. E., & Racine, E. (2017). The concept of 'vulnerability' in research ethics: an in-depth analysis of policies and guidelines. ***Health Res Policy Syst,*** *15*(1), 8-8. https://doi.org/10.1186/s12961-016-0164-6

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6 Evaluation of Youth Citizen Social Science

Authors: Melanie Saumer, Isabelle Freiling, Irina Dietrich, Marie-Charlotte Hasewinkel, Jaroslava Kaňková, Phelia Weiß & Jörg Matthes

An important, but complex, question in large research projects is how to evaluate them. This is especially true for co-creative citizen social science projects like YouCount. There are some theoretical considerations to draw from, and a few previous projects focused around similar issues, but evaluating these kinds of hands-on projects present several unique challenges, compared to natural science-focused Citizen Science with mainly quantitative outcomes.

In this chapter we will briefly outline the process of developing our YouCount evaluation framework, and describe what we have learned from trying out this framework in practice. Hopefully, our experiences will help shed light on important considerations to take into account when embarking on evaluation studies in future projects.
The experiences can also contribute to bringing forward some key considerations to take into account when embarking on evaluation studies in future projects. In the House of Citizen Social Science framework, we have now moved on to the outdoors, where the kite is taking results and findings from the evaluation study to other places, projects and teams of researchers.

After all, scientific success is always based on trial and error, (non-)falsification, and rejection or acceptance of current paradigms. The special case of evaluating social processes such as social inclusion calls for adequate adaptations and extensions of existing frameworks – in the following section, a brief theoretical overview is presented.

Designing an Evaluation Framework

First of all, the nature of the project, as well as the direction of the evaluation need to be determined: What aspects of the project should be in the focus? The bigger the project, the more careful the dimensions have to be extracted based on the general design and aim of the project. Several steps led to the final evaluation design.

Aha!

Remember that not every single aspect can be documented for evaluation, due to the simple fact that a data overload will not necessarily generate better and more concise evaluation findings.

Step 1: Decide On the Basic Pillars of your Evaluation

In the case of YouCount, the general criteria to measure social change achieved through a hands-on youth citizen social science project all revolved around the principle of co-evaluation, meaning that young citizen scientists would have to be involved in the scientific process of evaluating (e.g. Kieslinger et al., 2018; the CoAct project is a good reference for a strong co-creative implementation: https://coactproject.eu/).

More specifically, the main pillars of the evaluation framework are process and outcome oriented. Each one is clustered alongside both scientific dimensions, participation dimensions, and social dimensions. This allows for both in-case and cross-case evaluations, which taken together will paint a bigger picture of the real-life unfolding of the project. The main questions that were asked were (for more details of how they were derived, see Juricek et al., 2021): How and what should be evaluated? And what are the individual, social, and scientific outcomes of youth citizen social science? How can we measure and evaluate these outcomes?

Step 2: Familiarise Yourself with the Literature

To answer those preliminary questions, the current literature was closely evaluated and tailored to the social science context, while simultaneously considering the diverse nature of our individual cases. The latter aspect is especially important with respect to finding a balance of criteria that all cases have in common, while leaving enough space for individual differences between cases. The literature did not provide a clear picture on multi-dimensional evaluation methods for citizen social science projects, which is why we pieced together our own comprehensive framework based upon existing strategies.

(a) Outcome-related frameworks (e.g. Phillips et al., 2018) suggest dimensions to evaluate individual learning outcomes of citizen scientists. This rather quantitative approach was adopted into our framework by implementing a pre-post-survey design which anonymously measured individual-level outcomes like scientific knowledge, attitudes towards science, self-agency, and project involvement levels, among the young citizen scientists.

(b) Process-oriented frameworks (such as Ceasar et al., 2017; Fischer et al., 2021) highlight the need to consistently track communication, awareness, relationship and empowerment processes and changes. In the YouCount project, we therefore extended the originally citizen scientists-based approach by including multiperspectivity to account for dynamics and different perceptions. Professional researchers, citizen scientists, stakeholders and (if present) student assistants' perspectives were all incorporated equally. This was embedded by designing qualitative interviews at three points in time throughout the project with professional researchers, stakeholders and students. Further, three focus groups throughout the project with the respective young citizen scientists of each case serve as tools for insights into the Citizen Scientists' perspective. And as a third complementary process instrument, we added self-reports to the design. Those reports were filled out by each case leader four times throughout the project and consisted of short but concise questions about on-going processes (e.g. recruitment strategies and challenges, communication channels and obstacles, etc.). Conducting all those instruments (self-reports, interviews and focus groups) in the beginning, the middle, and the end of the project accounts for insights into processes, changes, and (overcoming) challenges from each perspective.

(c) Process- and outcome-based frameworks like the Citizen Evaluation Framework (e.g. Kieslinger et al., 2018) further suggest to focus on a threefold dimensionality of scientific dimensions (knowledge generation on both professional researchers' side and the young citizen scientists side), participants dimensions (young citizen scientists impact and empowerment), and social dimensions (social innovations, citizen education). This is why we incorporated all three dimensions into (almost) all of the overall four mixed-method measurement instruments: The pre-post surveys and focus groups with the young citizen scientists, the interviews with the professional researchers, stakeholders and students, and the self-reports by the professional researchers all included questions about potential scientific, participants (young citizen scientists), and social outcomes and/or individual processes related to it.

Step 3: Puzzle Together What Works in Your Project

Above all, what makes citizen science evaluations unique is the concept of co-evaluation. This means actively involving the young citizen scientists in the evaluation process; both in designing it, carrying it out, and analysing it.

What we found is that implementing a co-creative evaluation is more challenging than originally expected. This leads us to the next subchapter, where we share some practical implementation insights and necessary adaptations.

Implementing an Evaluation Framework

The "Perfect" Framework Doesn't Exist – But One Might Try

As outlined above, in the YouCount project, we planned to use four different measurement instruments that would be implemented into the natural project-flow of each of the ten cases. To ensure a mix of different methods, qualitative and quantitative measures were taken into a mixed-methods approach:

(a) The individual in-depth interviews made up the most extensive data source. The reasoning is that the professional researchers provide an extensive insight into the individual case development, while the stakeholders contribute an external perspective, and the students are viewed as a link between young citizen scientists and professional researchers, who also can contribute meaningfully. Multiperspectivity is essential in the project; hence this has to become visible in the evaluation as well. Conducting interviews with professional researchers, stakeholders and students at three points in time each would have led to about 90 in-depth interviews. The interviews were originally planned to be conducted in-person, since the grant agreement foresaw regular on-site case visits for each case and interview. This would have meant to have a total of 27 case visits within 1,5 years. Spoiler alert: For the sake of feasibility for the evaluation team, some changes have been made here (see below). Thus, the majority of the interviews were held online, which worked smoothly since it made the recording process easier. The interview guides were based on the aspects identified by the literature research and are listed in detail below.

(b) The short self-reports were designed as low-effort excel tables with concise questions to be answered with a few sentences each. The professional researcher team was supposed to answer it. The questions revolved about recruiting, communication, scientific skills, and so on. Each question had two sub-questions: "What were the challenges?" and "How did you overcome these challenges?". The reports originally were planned to be conducted five times during the project, with submission deadlines having been decided in the beginning of the project already.

(c) The focus groups with the young citizen scientists were from the beginning on adapted to reduce each cases' workload. Hence, out of three planned focus groups, the first two only had to be summaries that were filled into an excel table. The third and last (reflective) one then was supposed to be carried out completely, including a proper transcript and a full translation of it into English. This is a good example for the necessity of flexibility throughout the project: Since already early on it became apparent that a) the cases often moved slower than anticipated (e.g. due to COVID-19 and/or a need for longer relationship building for recruitment), and b) it also quickly was visible that the case work and work package work for each case would be a lot, up to a point where overburdening had to be prevented, the decision to only have focus group summaries was made even before the submission deadline of the first focus group. Yet, the task of the evaluation team always has to be to provide as many resources as possible (example: For each focus group, an extensive focus group guide was designed, with the most important questions at the time outlined in a detailed manner. Also, ice-breakers and visualisation techniques were recommended.). The cases were then asked to translate the guides and let someone external, who has not been working with the young citizen scientists (yet) conduct the focus group. This was mandatory in order to ensure honest feedback by the young citizen scientists, even in case they would maybe not be satisfied with the professional researchers' way of carrying out the project.

Aha!

Developing tools and practices that work both in-person and online gives you options and allows you to be more flexible. In YouCount, we designed ice-breakers and visualisation techniques in ways that made them possible to implement it both online and offline. This allowed us to conduct focus groups and meetings in-person when possible, and online when necessary.

Figure 15: The Focus Group Sun

Instructions to the focus group sun: *The focus group conductors should either show this in a google document (online option) or print it out (offline option). Now the young citizen scientists were asked to choose one of the animals on the right side and place it during the on-going focus group. With each new topic during the focus group, they could adjust the placement on the respective "beam of light". They were free to place it close to the middle of the sun, or further away, depending on how they felt with the respective topic. The closer their animal icon is placed to the middle of the sun, the better they perceive the topic. If it is further away, it means they think there are many issues with the respective topic. Aina Landsverk Hagen is thanked for helping the evaluation team with the design of the (hybrid) focus group assets.*

(d) The quantitative pre-post survey was co-creatively designed together with the young citizen scientists that took part in the Austrian case. It was based on inquiries about scientific knowledge, attitudes towards science, self-agency, and project involvement levels. It was designed to provide a measurement over time, to account for potential changes due to the involvement in the YouCount project. The surveys were translated and the links then sent out to each case and/or the young citizen scientists directly. The pre-survey was meant to be filled out by the young citizen scientists right at the beginning of the project involvement, the post-survey right after the end of the involvement,

Adjustments Along the Way: Nothing Turns Out as Planned

When doing an evaluation study, or research more generally, things don't always turn out as planned. As readers no doubt will have learned in previous chapters, this very much applies to co-creative projects as well.. It is therefore important to be aware of the need for design adjustments when the workload is too high or data becomes redundant; also ambitions of sample sizes and numbers of interviews and visits tend to be estimated higher than actually necessary and/or feasible. Maybe even more than other kinds of research, citizen social science projects show directly how urgent the need is to be able to adjust along the way, while at the same time thinking about scientific quality standards. A lot of knowledge was generated here, which is illustrated more specifically in the following section.

Interviews – Less is More

The quantity of the in-depth interviews had to be reduced, in order to ensure a manageable workload for the evaluation team and also keep the time investment of the cases on a normal level. Instead of aiming for 90 interviews, stakeholder and student interviews were reduced to minimum one per case (not three). Additionally, the case visits were reduced to one per case, instead of three per case, while the remaining interviews were held online. Regarding the student and stakeholder interviews, it became apparent that language and/or time constraints were the most common reasons for recruiting obstacles, which is why the adaptation to fewer interviews was both necessary and welcomed.

Self-Reports – Timing Matters

The short self-reports were faced with time constraints and, consequently, some deadline delays. This also led to a few missing ones, however, every case submitted at least three out of four.

Focus Groups – Important but Intense

The focus groups with the young citizen scientists were, as mentioned above, adapted to reduce the workload for each case. Three summaries are missing, which is compensated by the fact that the reflective third focus groups, namely the only full extensive and therefore most important focus group, was done by each case. Here, too, time constraints and/or sometimes a lack of compensation of the young citizen scientists were an issue that would have to be accounted for in future projects.

Oops!

When planning the interviews, we forgot to consider language barriers as potential barriers for participation and understanding. Especially with student assistants and local stakeholders, this was a challenge. One interview was conducted with a translator, other times the questions were sent beforehand so the interviewee could familiarise themselves with them.

Quantitative Survey – Snapshot with Barriers

The quantitative pre-post survey ended up being more challenging than expected. In previous Citizen Science projects, those kinds of surveys showed to be the least problematic part of the project evaluation. However, in the YouCount project, it somehow did not work out well. First of all, the start and end date of the young citizen scientists in each case was varying so much (due to fluctuation, drop-outs, newly recruited young citizen scientists, and incomparable case time-lines) that a proper pre- and post-measurement was completely impossible. For that reason, the survey developed into more of a process-survey, where the young citizen scientists' scientific knowledge, attitudes

towards science, self-agency, and project involvement levels were measured at different points in time. Contrary to the planned pre-post-comparison, we now are only capable of estimating one point in time, but no change in time. At least those lessons learned out of this experience with the only purely quantitative evaluation method are valuable. Even though the survey got translated into every case language and was co-created with young citizen scientists, some comprehension barriers seem to have been an obstacle in some cases. Further, the distribution via mail/link did not prove to be effective, only a direct allocation of time during in-person workshops by the respective case leaders did work. Finally, even the incentive lottery (two pairs of AirPods [wireless earbud headphones] were raffled amongst those who completed the surveys) did not seem to motivate all young citizen scientists, which might have been due to misunderstandings or inadequate communication efforts about the lottery.

Important Considerations

As probably already noticeable when comparing the implementation plans with the implementation reality, some valuable learnings were generated along the way of conducting this evaluation. The nuanced deviations of each evaluation tool were outlined above already. The reflections about the reasons for those discrepancies, however, need a meta-level reflection about underlying structural deficits that might have caused those forced adaptations of the original plans. To avoid this in similar future projects, here a quick summary about the most important reflections to ensure a smooth evaluation process:

Plan Reasonably

Design is key! For instance, the estimated number of interviews (90) and on-sight case visits (27) was not feasible from the beginning on. Applying a realistic approach as to what is really necessary to be evaluated in-depth, and how this can be done with a mindful use of (personal and monetary) resources will benefit the overall project "smoothness". It is advised to outline a detailed evaluation deadline plan with all case-tasks from the beginning on, so potential obstacles can be managed individually in time. Although this was done for the YouCount evaluation, some deviations were necessary, but to be expected. Letting some room for flexible adjustments or prioritizations is hence also strongly advised. This also relates to a potential data overload: Considering different angles of evaluation perspectives (e.g., young citizen scientists vs. professional researchers) is highly recommended; however, mind risking a data-overload. Some aspects that are most valuable are evaluated several times (e.g., learning curves; process focus), while others are sufficiently evaluated with one measurement (e.g., innovations; outcome focus). Too much data will not lead to a better evaluation, but rather compromise the overall comparative angle.

Consider Potential Barriers on Both Sides

All kinds of obstacles can hinder (young) citizen scientists in participation of not only the case-related tasks, but ultimately also the evaluation-related aspects. Those include language barriers, socio-economic barriers, time constraints, lack of incentives, and overall motivational hurdles, but also feasibility struggles/overburdening and misunderstandings on the professional researchers' side. A good relationship quality between the professional researchers and the young citizen scientists does prevent at least some of those barriers due to communication. Also, additional resources, e.g. translators/interpreters, student assistants, can help.

Co-creation Does Not Always Make Sense.

Estimating where a co-creational approach is useful and where not is one more major part of citizen social science evaluation considerations. In some instances, designing a co-creational tool is neither necessary nor feasible (e.g. when applying scientifically validated measurement tools/strategies), while in other regards it is both useful and creates unique additional knowledge (e.g., when brainstorming what kinds of questions to ask the young citizen scientists in questionnaires, interviews, etc.). It is commonly advised to employ a mixed-methods design with quantitative and qualitative instruments, as well as a complementary mixture of co-created and scientifically approved tools.

Balancing Case Foci

Multiperspectivity matters, when it comes to the bigger picture of project outcomes. Taking various dimensions such as scientific vs. individual/civic/citizen scien-

tists-based vs. societal outcomes into account does lead to some form of compromise: Emphasising one of them leads to less salience of another one. Therefore, we chose to measure some topics (e.g. communication processes) multiple times with different methods out of our evaluation tool potpourri; in some instances, it can even be useful to implement core topics into every evaluation instrument. Notably, here again a potential data overload needs to be considered, so those prioritised aspects need to be selected carefully. Lastly, a decent level of case-autonomy/-individuality needs to be implemented into the evaluation framework. This requires flexibility by prioritising (and communicating) what is needed most definitely by each case, and what can be compensated by other data.

RESEARCHERS' PERSPECTIVE

Our job is to fail.
– Researcher from YouCount Norway

Failure Is Ultimately Productive

Contrary to rather static, quantitative studies/projects, CSS is inherently dynamic and poses challenges simply due to its nature of doing science with people, instead of only researching about them. Given the unique characteristics inherent in the design, development, and outcomes of each Citizen Social Science (CSS) project, obstacles, changes and failures are unavoidable. Conversely, those can become productive and generate new insights into the work with Citizen Scientists, which are inherently valuable findings.

Key Takeaways

- **Focus on the most important points. Ask yourself what exactly you want to evaluate, how you want to do it, and if it is feasible for all parties.**
  - In YouCount, we ran into a data overload, which resulted in a theoretical saturation when coding all material for the final reports/deliverables, so some of the workload could have been reduced from the beginning on. The more the merrier is not always the best way in citizen social science!
- **Stay flexible. Account for adjustments, deviations, delays and most importantly: don't let that frustrate you!**
  - As we had a fully established framework from the beginning on, delays in one method usually led to deviations in all other methods as well. Thus, regularly updated time tables were essential.
- **Disseminate your methods: Mixed-methods pair up well with multiperspectivity.**
  - As it turns out, the few missing data sources that we faced were no problem at all! Due to the mixed-methods approach, other data filled in those gaps.
- **Enjoy witnessing knowledge production! As an evaluation team you have the unique opportunity of seeing the whole citizen social science process unfold from the beginning to the end.**
  - During the case visits, the researchers were informal "knowledge transferers", who distribute do's and don'ts from other case experiences as best-practice examples.

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7 Pathways to Impact in Youth Citizen Social Science

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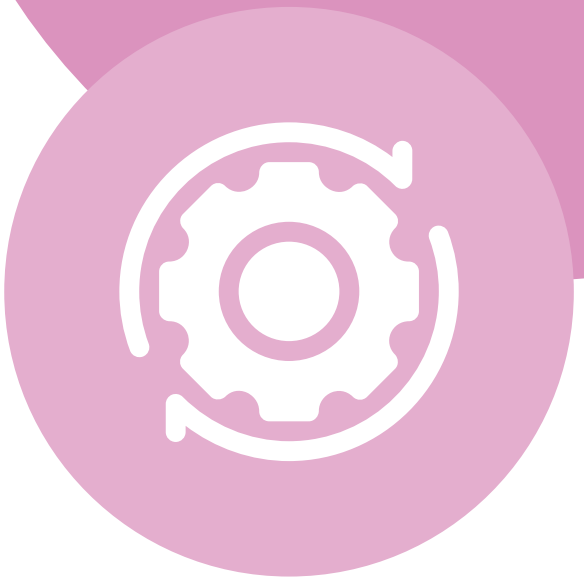

Demonstrating the value of research to academic and funding bodies has become more important, leading to a greater emphasis on measuring research impact. However, the term 'impact' presents challenges, especially for social scientists using co-creative approaches like youth citizen social science. These approaches are more consistent with a type of knowledge production that happens in the context of its application, involving transdisciplinary, heterogeneous, and non-hierarchical collaboration within flexible research teams (see Gibbons' knowledge production typologies, 1994).

In the House of Citizen Social Science framework, impact is the growing tree outside, reaching for the sky but grounded in common research aims and societal challenges. In this kind of approach, uncertainties about the outcomes of research activities are common due to interactions and negotiations among participants, leading to varying outcomes over time. These uncertainties may conflict with funders' application requirements, as discussed in Chapter 3 on how to carry out a citizen social science project. Researchers in this field often feel pressured to align their work with specific policy agendas, despite the intricate and unpredictable nature of their research interactions, which may result in divergent outcomes.

Furthermore, for research funders, 'impact' covers various policy aspirations that may go beyond the scope of the research. As a result, the understanding of impact within policy, social science, and collaborative research—such as co-creative youth citizen social science—is complex, fragmented, and subject to contention. So, how should we approach the concept of impact?

To understand and measure impact in collaborative social science research requires a nuanced approach that takes into consideration both the complexities of interdisciplinary interactions, diverse stakeholder perspectives, and the evolving nature of social issues. We believe that by posing critical questions and assessing the multifaceted dimensions of impact, policymakers and researchers can better ground the notion of impact within citizen social science practice, with the aim of fostering meaningful social change and inclusive policymaking. But first, you need to grasp what impact actually is, before we explore how you can measure and assess it.

What Impact Means In Youth Citizen Social Science

The Definition, Dimensions and Possible Outcomes of Impact

Defining impact and the entangling of its different meanings and approaches require a first insight of how we understand impact in youth citizen social science. In YouCount, we used the following impact definition:

> ***Impact are "all the changes that are expected to happen due to project activities", acknowledging that, "they can occur over different timescales, affect different types of actors, and different dimensions" (Network4Society, 2020).***

According to this definition, the impact objectives of youth citizen social science projects should reflect the expected changes resulting from the research activities to be undertaken. These objectives are intricately linked to the unique characteristics of each project, making them highly context-dependent.

By reflecting on the following aspects of impact, we can refine and align the impact objectives of our youth citizen social science project with its distinctive contextual features and multidimensional nature:

- **Distinguish time frames**
  Very often discussion about impact objectives mix in the same pot the expected impacts of different scales. But short-term (within the project lifespan), medium-term (within 5–10 years of the project start) and long-term (after 10 years) impacts need to be distinguished. Otherwise, the research team might be committed to impossible futures, generating internal tensions and frustrations among participants.
- **Connect the impact objectives with the target group**
  The objectives need to have a clear view of which people or situations are affected by research. For example in YouCount we analysed the effects of the research in three main groups: the young citizen scientists, the stakeholders and the researchers.
- **Open up for multi-dimensional impact objectives**
  What are the changes or transformations that one could expect when doing youth citizen social science? The impacts of youth citizen social science ventures are multi-dimensional, manifesting across scientific, participant, and societal dimensions. In YouCount (D.4.4: Lorenz et al., 2023), we explored and several effects within these dimensions. They are however not exhaustive, leaving room for consideration of additional impacts.

  - ***The scientific impact dimension*** comprises the effects that research is producing in the academia due to an enhanced science-society collaboration such as:
    - The co-creation of new knowledge with participants such as young people and stakeholders through their participation in research activities.
    - New methods for science education, communication and public engagement.
    - Structural organisational changes in research organisations.
  - ***The participant impact dimension*** examines the effects that research has over the participants, such as:
    - Science literacy and educational outcomes in terms of improved cognitive competences (knowing) about youth citizen social science and the subject of study.
    - Skills for an increased capability to do youth citizen social science (functional competencies).
    - Changes in attitudes and behaviours (social competences) gained in the research process.
    - Other social outcomes related with the subject of research, such as:
      - Increased opportunities linked with the subject of research (i.e.: increased opportunities for social inclusion, employability).

- Strengthening of social networks.
- Increased social capital.
- Increased citizen engagement.

- ***The socio-ecological and economic dimension*** captures the changes in the wider environment beyond the individual level, such as:
  - An increased policy engagement with science and citizens' active participation in research and decision making.
  - New social innovations, informed policymaking and governance and policy recommendations.

The impact dimensions and categories mentioned above, reflect possible interesting outcomes to look for in youth citizen social science projects. The following are examples of concrete impact outcomes found in the YouCount project in some of these dimensions and categories.

- Knowledge was co-created by and with young participants and they collaborated in delivering the scientific results of the project (such as publications and books). Youth citizen social science co-developed new knowledge pertinent to social issues affecting younger demographics engaged in the citizen social science project.

- Participants were empowered through their engagement in citizen social science activities. They enhanced their understanding of citizen social science, improving their proficiency in tasks related to youth citizen social science, and improved their ability to interact within their social environments.

Why Measure Impact In Youth Citizen Social Science?

The importance of impact assessments merged in a preparation meeting with the YouCount Advisory Board and Safety and Ethics Board before a EU review meeting in the fall of 2022. These boards are composed of key experts and policy stakeholders in the field of citizen science and social inclusion.

The board members highlighted the value of impact assessment as a way to understand what young people value from this approach, for managing expectations of the potential effects this approach may have in the societal dimension (societal impact), and address the worries of the stakeholders when it comes to the benefits/costs of adopting this kind of research. The value of impact assessments can be seen from the statements presented below. On increasing the understanding of what young people see as beneficial from participating in youth citizen social science, one board member commented:

> ***"It would be beneficial to know what impact of collaborative research youth value and want to see more of."***

In the YouCount project, we learned early on that assessing impact in youth citizen social science projects is really important. Firstly, through measuring impact we are *addressing the growing need for understanding novel approaches.* People in the academic and policymaking world want to understand the value of new research methods like youth citizen social science. Assessing impact helps us see what outcomes come out of these projects and can help in managing expectations concerning the social impact outcomes of such projects. As one YouCount board member commented:

> ***"It would be good to manage the expectations a bit more in terms of social impact. Good to embed this in a deeper methodological discussion on what YouCount is actually doing."***

Secondly, there is a need for *making impact easy to understand for everyone*. Assessing impact helps everyone understand why youth citizen social science can be a valuable

approach. By looking at the effects of these projects in a structured way, we can see how useful they are.

This can be done through encouraging conversations and involvement, and through starting discussions among people who can promote these projects, like young people, stakeholders and researchers. Another approach to making impact understandable is by boosting youth involvement and learning. For young people, understanding the benefits and opportunities that these projects can bring to them is important for fostering their participation, engagement and involvement. Impact assessment can address stakeholders' concerns about the potential benefits of this approach, like this board member stated:

"Some stakeholder groups get a little bit suspicious about all this participatory work. What are real benefits?"

The Effects of Youth Citizen Science - Beyond the Scientific Field

The findings in the YouCount project highlight that the outcomes of youth citizen social science goes beyond the project's initial expected effects in the scientific dimension. For example, the various sub-studies show broader empowering and more socially impactful effects in both the participant and socio-ecological and economic dimensions (D.4.1: Saumer et al., 2023 and D.4.4: Lorenz et al., 2023). These broader effects expand the initial expectations in the scientific field of co-creative youth citizen social science.

The broader impact can be seen in the statements from the young citizen scientists demonstrating YouCount's impact in the socio-ecological and economic dimension. Through project activities, new practices of collaboration between youth and stakeholders that otherwise would not be possible were developed. Reaching the stakeholders was regarded by the youths as the main achievement of the project, like the youth citizen scientists from the UK and Norway stated.

Aha!

You need to move beyond the scientific dimensions to understand and assess the social and individual potential of youth citizen social science.

YOUTH PERSPECTIVES

I think the main thing that YouCount achieved was getting the stakeholders to acknowledge points that they already knew existed, but would just ignore."
– Young person from YouCount UK

Our living labs have given the stakeholders opportunities to meet, talk, collaborate, and find solutions to problems we face in society. – Young person from YouCount Norway

The following quote exemplifies another kind of effect that the researchers identified as a key social outcome of the YouCount project on the participant dimension: increased opportunities of participation and for being heard.

RESEARCHERS' PERSPECTIVE

The young people automatically feel heard, like they matter and belong. By adding stakeholders, they feel valued, like they can have a meaningful impact, and feel appreciated.
– Researcher from YouCount Austria

Local stakeholders in the case studies also brought forward that youth citizen social science could create impact by being a new practice for social innovation within the socio-ecological and economic dimension. For example, as seen from the story of a local community stakeholder participating in the YouCount final conference, meeting face to face with young people made all the difference. In his view, young people are residents of the city and council members are interested in making them feel safe and secure. After attending the living lab meetings in YouCount, it was obvious for him that youth wanted to have more dialogues, positive opportunities, leisure and work, feeling safe and more places for them (D.5.3: Norvoll & Plassnig, 2023:64).

Even though this stakeholder had a background in youth work, he would often hear from professionals and not the young people themselves. In his view the research originating from YouCount was useful as it added real stories and real life experiences from youth (Local stakeholder, UK case, panel discussion, final conference, D.5.3: Norvoll & Plassnig, 2023:64).

The young citizen scientists also said that they have learned a lot of things from participating in the YouCount project activities.The graphic illustration above synthesises the main learning points the youths highlighted in relation to the joint ECSA Working Group EIE and YouCount *Webinar 4: Stories from the YouCount Youth – On new perspectives, being heard more deeply and belonging* (28th September 2023, D.1.5: Murray et al., 2023).The learning collected in the illustration showcases the broad potential of youth citizen social science, especially for young people.

Young Citizen Scientists' perspectives on what they learned taking part in YouCount. Visual Capture by Ruth Graham

The YouCount project thus shows that it is essential to shift focus towards the participant and societal dimensions when considering youth citizen social science projects. Such projects have the potential to yield broader, empowering, and more impactful social outcomes than initially anticipated.

Key Takeaways

- **Incorporate impact ambition in initial project management.**
  - When the project kicks off, it's really important for the whole research team, including young citizen scientists and everyone involved, to work together and figure out what you want to achieve with our project.
  - Let's all agree on the impact objectives based on the three dimensions. Doing this sets the stage for making sure our objectives and expectations all match up.
- **Think about dimensional weight and what matters most.**
  - Understand that not every dimension is equally important. When you prioritise, it should show how youth citizen social science affects participants and society in a special way.
- **Impact objectives can change.**
  - Just know that the objectives we set at the beginning might change as we go along. When we're doing youth citizen social science, the knowledge generation will often be more aligned to what is called " Mode 2 knowledge production" by Gibbons et al. (1994). This kind of knowledge production is more interactive and often entails complexity and unpredictability. So, our impact objectives might shift and adapt as the project keeps moving.
- **Be flexible.**
  - We need to be ready to adjust based on what's happening in the project and what the participants are telling us during our youth citizen social science journey.

How to Measure Impact in Youth Citizen Social Science Projects

When we're figuring out how to measure impact in youth citizen social science projects, it's obviously not a one-size-fits-all situation. We've got to shape our process based on two key aspects of our youth citizen social science projects. First off all, just like we mentioned before, we need to look at the specific details of each project – things like the time frame, who it affects, and those multi-dimensional impact objectives.

Second, when we're setting up a process to measure impact, we've got to understand the research methods and activities planned for the project. Because when we're putting together the impact assessment process, we need to consider what research activities are happening, what they're achieving, what methods we're using, and figure out how the assessment fits into the bigger picture.

YouCount's valuable contribution to impact assessment methodology stems from our experience in adapting this process to the specific characteristics of youth citizen social science projects. First, in YouCount we explored how to set up our own methodology departing from a review of the research methods and tasks undertaken in the inter-country research in and across many local cases. The objective was to get to know where the observable data of the effects of the YouCount research could be observed and collected.

Impact assessment into youth citizen social science practice

In YouCount, we crafted our own way of assessing impact, specifically designed to align with the unique research approach of youth citizen social science. This approach took into account the various research tasks and methods carried out throughout the project. As we mentioned earlier, youth citizen social science involves transdisciplinarity, which means that tackling a problem requires the involvement of different skills, contributing to the solution within its real-world context (referred to as Mode 2 Knowledge Production).

Because collaborative knowledge production in this setting can get messy and unpredictable, it might lead to impacts that weren't initially planned for or not considered within the initial impact objectives. Drawing from our experience in assessing impact in YouCount, we've identified some principles that can guide the development of a tailored impact assessment approach for youth citizen social science projects.

Principles for assessing impact:

- **Be welcoming to unexpected discoveries:**
  Encourage the exploration of unplanned findings that may emerge during collaborative research, going beyond the initial impact objectives.
- **Be inclusive and engage different perspectives:**
  Ensure the project includes the perspectives and contributions of all stakeholders, including the young citizen scientists, involved in the research process, facilitating a comprehensive representation of varied viewpoints.
- **Manage a balanced workload:**
  It's crucial to design impact assessment tasks that seamlessly integrate with, rather than clash with, the ongoing research tasks. Set up an agile and adaptable process that is efficient, flexible, and can adapt to changing circumstances.

Tools for impact assessment in youth citizen social science

The impact assessment framework used by YouCount blends a variety of tools, integrating conventional ones such as logic models (as proposed in models like the Payback Model by Donovan and Hanney (2011), the co-produced pathway to impact by Phipps et al., (2016), or the six guiding principles for a consolidated Citizen Science Impact Assessment Framework by Wehn et al., (2021) with additional tools designed to uncover unexpected outcomes that may arise from collaborative research. We, therefore, propose considering a mix of tools that can help uncover the unplanned outcomes in youth citizen social science. The tools used in YouCount include:

1. **Logic Models**:
   These models serve as a valuable tool by systematically linking research activities with their associated benefits. They aid in connecting planned work, allocated resources, and undertaken activities (inputs) to the ultimate outcomes and impact, providing a structured framework for understanding project progression and its broader effects.
2. **Data Processing and Collection Tool**:
   An efficient tool for processing and collecting data plays a crucial role by:
   - Displaying both qualitative and quantitative impact-relevant data.
   - Organising data according to the key elements of the logic model (inputs, outputs, outcomes, and impact), facilitating a clear understanding of the project's progression (including the discovery of new and unforeseen outcomes).
3. **Process Design for Assessing Emergent Outcomes**:
   Crafting a structured process to assess outcomes stemming from collaborative research interactions and negotiations is essential. This process should capture diverse experiences within research through methodologies such as storytelling, focus groups, and joint reflections. Measuring impact often feels like an imposed task with conflicting deadlines that compete with ongoing research activities.

RESEARCHERS' PERSPECTIVE

I would have approached the impact assessment differently to ensure researchers feel more connected to its measurement. I would have initiated discussions about impact objectives right from the start, incorporating insights on its value throughout the project, and encouraging research teams to be more actively involved in the task." – Researcher, YouCount

Key Takeaways

- **Explore process assessment for unexpected discoveries.**
  - If you want to find unexpected insights, think about switching to process assessment. This way, you can be more flexible and freely explore unforeseen outcomes.
- **Stay flexible and open to the unexpected.**
  - Keep an open mind and be ready for surprises. Plan for unexpected discoveries, so you can actively handle new findings.
- **Make impact assessment enjoyable and engaging.**
  - Use the co-creative methods in citizen social science to turn impact assessment into a fun and engaging experience for everyone involved.

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Aha!

Dare to deviate from what was planned. Sometimes you need to stay open to see other things than the ones you are looking for.

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8 Planning and Organising a Youth Citizen Social Science Project

Author: Reidun Norvoll

Previous chapters have outlined various approaches to conducting co-creative youth citizen social science in practice, supported by concrete examples from the YouCount project. In this final chapter, we will summarise key considerations to bear in mind when planning and organising a youth citizen social science project or initiative. As depicted in the House of Youth Citizen Social Science, the societal challenges and research aims represent the foundation on which to design and construct your house, i.e your project. Consequently, there is no singular approach to conducting youth citizen social science; the appropriate approach must be determined on a case-by-case basis.

The design of the project will also be influenced by the type of citizen social science initiatives you aim to undertake. Some projects may adopt a more scientific approach, focusing on traditional research methods to generate new knowledge or insights into a social issue. Others may prioritise educational objectives, aiming to enhance social science learning, environmental awareness, and community outreach. Alternatively, there may be action-oriented projects or initiatives aimed at addressing local social concerns (Cf. WeObserve, 2020). The YouCount project encompassed multiple objectives aimed at exploring the potential of citizen social science. Looking back, it is evident that a more specific project goal can enable a clearer focus and more efficient allocation of resources.

As detailed throughout this handbook, co-creation requires a flexible approach where the specific focus and outcomes are not predetermined. However, a co-creative citizen social science project also requires careful design, organisation, and management to succeed (Gold et al., 2023; Pettibone et al., 2016). Additionally, there are particular considerations to ensure inclusivity (Albert et al., 2021; Senabre Hidalgo et al., 2021; Thomas et al., 2021).

Here, we will outline key considerations for designing and implementing a youth citizen social science project. These will encompass insights drawn from both citizen science principles in general and reflections from the YouCount project detailed in earlier chapters.

Designing a Youth-Friendly Project

The participant group plays a crucial role in the design and management of any youth citizen social science project. Previous chapters have underscored the significance of considering young people's age, life circumstances, perspectives, and pace, along with effective engagement strategies.

For instance, within the YouCount project, several local cases highlighted that an EU initiative might appear somewhat "dry" and "top-down" to young individuals. Consequently, research teams invested time and effort into discovering ways to effectively engage young people and local stakeholders, fostering bottom-up processes. This necessitates the development of specific strategies, as well as the allocation of resources and time to cultivate trust, interest, and relationships with young participants.

A youth-friendly project must also address the requirements for enabling or empowering youths to participate in project activities. This may involve providing travel support (such as tickets or assistance) or digital and technological equipment, particularly for young people with disabilities. In projects involving a diverse group of young people, it is also essential to take cultural considerations into account, including religious observances, like dietary preferences.

Moreover, when planning project activities, it is crucial to consider young people's life contexts. While it may be convenient for project leaders to schedule meetings based on researchers' availability, young citizen scientists often have school or work commitments, necessitating scheduling meetings outside regular working hours. Additionally, holiday periods vary across countries and must be considered when planning project timelines.

Oops!

'Oh no, exam time!'
When scheduling meetings in a youth citizen social science project, the one period to avoid is the exam period, usually at the end of each semester. Most young people will not be able to participate during this period.

It is not only *when* you have the meeting that is important for building a youth-friendly and inclusive project, but also their duration, location, and format, whether formal or informal, in-person or online. As previously discussed, within YouCount, both young citizen scientists and researchers emphasised the significance of informal gatherings, playfulness and enjoyment. Incorporating creative activities that encourage social interaction, teamwork, or travel can enhance the project's appeal to young participants. The format of meetings also influences inclusivity. For instance, the Hungarian case team found that online meetings, where the hard of hearing youths could easily lip-read, facilitated their participation and inclusion. Providing technical assistance and ensuring that participants' faces were visible during physical meetings were also important considerations (Mihók et al., 2023). In other instances, facilitating translation services and offering English language support were necessary to accommodate youths less accustomed to English-language meetings (D.1.5: Murray et al., 2023).

It is also prudent to consider tasks that are youth-friendly and consult with the young citizen scientists about their preferred involvement. Some cases in YouCount found it necessary to avoid formal, tedious, or lengthy tasks to sustain youths' engagement. Involving youths in budgetary issues or formal ethical approval processes could also be daunting. Achieving a balance between voluntariness and responsibility in researchers' expectations of participating youths is crucial and will depend on individual preferences, social contexts, and the youths' age.

Lastly, designing a project for young people should acknowledge that becoming a citizen scientist is a gradual process. As youths gain confidence and experience as co-researchers, they can take on more significant roles and tasks (D.4.4: Lorenz et al., 2023). In YouCount, participants who remained involved for extended periods evolved their perspectives and experiences as young citizen scientists. Over time, they developed a deeper understanding of the project, cultivated a stronger sense of ownership over the research objectives, and felt more integrated into the research team (D.4.1: Saumer et al., 2023).

Planning and Managing your Project

Develop a Vision and Goal

As previously mentioned, a successful co-creative project requires a well-defined scientific vision with clearly articulated goals or objectives developed collaboratively with participants from the project's outset. It is imperative to involve youths and local stakeholders as extensively as possible, starting from the proposal phase. Well-defined research objectives and questions facilitate the selection of an appropriate methodological framework and simplify the evaluation process. However, co-creative and exploratory projects also demand adaptability and a flexible research design that evolves in response to input and a deeper understanding of the research issue.

Chose Participants, Place and Levels of Participation

When designing the project. in previous chapters, when designing the project it is also key to consider which young citizens, age group, and stakeholders that should be involved to realise the project, and which levels and forms of participation that should be used. Moreover, which place do we want to do the project, for example in the local community or school-setting?? The best choices will depend on the kind of project you will do, the scientific goals and what will benefit knowledge generation or the practical aspects and need for resources. For example, the kind of project will influence the prioritisation of scientific research vs social change, the choice of place will impact the need for resources to travel, and the choice of age- span the research tasks due to legal regulations.

Participation can be designed in processual ways and the degree of participation can vary during the project period depending on what is going on in the individual youth life. It is also possible to build a network of interested young people who can take part in different tasks and for different time periods or using combinations of high and lower levels of participation. For example, in the YouCount project, we combined participation of young people in the research teams during the whole research process with a larger group of young people in the community participating in more limited "contributory" roles where they only took part in living lab meetings, dialogue forums or contributed observations in the YouCount App (see Chapter 1, figure 2 about the design of the local cases). In reality, fewer youths participated from the beginning to the end in the three year long project, the length and degree of participation were also much more nuanced than we planned for. Retrospectively we can see that such circulation is quite normal as there is so much going on in young people's lives. A long-lasting project therefore needs to plan for constant recruitment and training processes during the life span of the project.

Further, as described, it may be easy to use co- creation as a "buzz- word" because it looks good in some policy settings or research funding programmes. But, co- creation don't come easy. Real co- creation needs a thoroughly planned process that enables the youths to partake in the designing and decision processes together with the professional researchers (e.g., D.1.5: Murray et al., 2023; Senabre Hidalgo et al., 2021). It is also essential to have a substantial group of young citizen scientists involved because the size will influence their possibilities of having a say or capability to influence the research processes.

RESEARCHERS' PERSPECTIVE

My main takeaway from this consortium meeting is the change in dynamics that happen when you have enough young citizen scientists attending. It makes a huge difference, and it is just a better experience. – Researcher from YouCount Norway

There are several ways to organise for an inclusive youth citizen social science project (Paleco et al., 2021; Varga et al., 2023). One option is to specifically target the youth population or unrepresented community. Another option is to mix groups of young people from community and university settings.The latter can support the bridging of

education in and outside school settings or contribute to social inclusion by strengthening social networks and social capital. In YouCount, the project used both approaches. First, it included a mix of different youth groups from the university and community setting. Then, some of the cases chose to target a special group of young people (for example, refugees) through stakeholder organisations or NGOs (D. 4.4: Lorenz et al., 2023; D. 3.2: Pataki et al., 2023B).

As mentioned, inclusive and co- creative citizen social science can be demanding in practice. It is therefore important to have a critical analysis of what kind and level of participation that is actually possible to achieve and then adjust to a realistic level along the way to avoid frustration and overload.

Where to Start?

The tradition and culture for using participatory citizen science differ in and among the European countries (Vohland et al., 2021) and these differences need to be taken into account when designing and running a citizen social science project.

For example, the YouCount cases experienced that if you need to start from scratch, it is particularly important to build a research team with competences in this way of working and to plan for a more intensive and longer engagement process. The participants will need more time to learn and understand how citizen social science can be relevant and used in their settings. It is also important to pick the best and easiest place to start as the researchers may need to follow up closely. Where are the interested stakeholders? Can you start with some participants you already know? Look for one designated person on the local level who can serve as gatekeeper or connector in the community and to the youths. Sometimes you must be prepared for the need of finding another place if the first community engagement failed.

It is also vital to understand and include the stakeholder's role and local setting and to incorporate the circumstantial needs in the planning to succeed. This gap requires a translation of citizen social science to the local setting.

Time Awareness

Time and time awareness is crucial when you are designing and running an inclusive co- creative citizen social project. For how long time will the project run? Is it short- or long term? Will you integrate this project in a longer commitment?

The time schedule will depend on the resources available and what will serve the project's goal. Time management is found to be a common challenge in citizen science projects (Locke et al., 2019). Time challenges may also occur in co- creative citizen social science where you have many complex processes and coordination tasks which need to be planned and handled along the way. You will therefore often need firm management and a plan B to mitigate serious delays.

Time is also found to be an important part of inclusive science. For example, when having hard of hearing, the youths may need longer time to listen and speak, meaning that the dialogue goes slower (Mihók et al., 2023, see also Chapter 4 on Communication). Too fast conversation or abruptions of the researcher in group discussions can be experienced as offensive and exclusive.The pace can impact on the power relations in the group. The importance of speed may also apply to participants groups with other issues or who are not native speakers.

Oops!

Time really does fly in co-creative research! I should have been more aware about the time limits of a project

Time awareness and providing enough time is thereby important when designing a project for inclusive citizen social science. This is also an important ethics aspect contributing to responsive and caring science.

Resources and Infrastructure

While visions and research objectives are key for a citizen social science project, the material aspects (such as resources, infrastructures, documentation and equipment) should not go unnoticed (Meyer, 2021). Allocating necessary resources and infrastructures are important ingredients of a successful and feasible project. The larger the project, the more need for stable structures and staffing to avoid extra coordination work.

A co- creative citizen social science project also demands a sufficient travel budget for researchers and the young citizen scientists due to the collaborative and local work. The development and use of digital devices or channels for documenting and disseminating the project may be costly and need workforce resources. The project will also need sufficient resources, staff competencies and infrastructure for science communication, public engagement and science literacy activities as core aspects of participatory communication in citizen social science (Canto Farachala et al., 2023, and see also Chapter 4 on Communication). The strong focus on communication activities in a citizen social science project may be unusual for researchers coming from "traditional" social science, and therefore easy to overlook.

As mentioned, co- creative processes are often work-intensive. What you do between meetings, such as following up and maintaining stakeholder relationships, are important to avoid losing stakeholders on the way. Co-creation thus includes much "zero -point research", referring to all the trust building and relational work and more that you need to have in place before you can even start the research project. This zero-point work is important to acknowledge when setting up and allocating resources to a co-creative project, not least when conducting research with communities often further away from science.

There is also a need for building a good structure and resources for training and support to the young citizen scientists and stakeholders involved and for providing necessary incentives or rewards to keep them engaged. Good infrastructures for data collection in terms of procedures (e.g., a data management plan) and resources for data collection (such as equipment, language translation and transcripts), data storage and analysis are also needed to secure knowledge generation and scientific quality are also crucial for a smooth project process.

Management

Managing a citizen social science project resonates with good project management in general but will need to adapt to the special characteristics of co- creative research. Transparency and fairness in management of the project is crucial for trust in many project teams. Further, as seen from the many examples through this handbook, the YouCount project has demonstrated that co-creative youth citizen social science requires balancing firm leadership and structure with necessary flexibility to adapt to the needs of young people and the local community, and to adjust the level of involvement to match the available resources. This adaptability is based in a responsive and democratic management style that is willing to respond to the research processes and be open to inputs from participants.

Still, there is a need to balance this flexibility with a firm steering to ensure necessary progress, manage expectations and demands, and to avoid too many open and democratic processes as these may be exhausting for the team. As found in the YouCount project, co-creation should be used, but not be expected for every minor detail (D.4.1: Saumer et al., 2023). Otherwise, it may be experienced as "the tyranny of participation" (ibid:28.).

Co-creative projects may also lead to relational and facilitation fatigue because of its collaborative, relational and interactive nature. Hence, it is important to be mindful of the need to rest, vary tasks, use less demanding methods, and to re-energise along the way. It may also be helpful to incorporate a network of support and mentoring for the project leader and team.

Building a Team and Working Together

A good team and strong team identity is crucial when conducting hands-on youth citizen social science. One of the first tasks is therefore to assemble the core team (being professional researchers and young citizen scientists) and to outline project goals and needs (Locke et al., 2019). It is also important to think carefully about how to put the team together, be the best number of team members, the skills and capacities for researchers, and furthermore: the balance between professional researchers and youths and interplay between seniors and juniors and between community youths and

Aha!

Rest and recreation is key to being a responsive and supportive project leader to my team. We are all more engaged when energised, and the need for rest also applies to the researchers and young citizen scientists.

students. A good team in co- creative youth citizen social science often requires researchers that have good competence in working with young people and in doing practical hands-on research together with experienced researchers and a goal-minded project leader. Another important learning in the YouCount project is that you need to find designated youth person(s) in the team but not rely too much on one or a few experts or enthusiasts as this can create a vulnerability in the project. What happens with the project if that person quits? You need enough dedicated people to build a robust team.

When the team is appointed, there is a need to establish a good working culture as this is crucial for having a nice atmosphere in the project and for smooth working processes. The project leader and work package leaders will have a key role in setting core values and working style for the project. A gender sensitive balance is also important, since it can influence the research process and its outcomes. A good team is focused on the importance of goal achievements, at the same time being respectful and supportive towards each other, as well as responsible and responsive, to avoid unnecessary workload for the other team members. In the YouCount project, we also learned that it is important not only to share successes but also disappointments and situations where things didn't go well. Such situations are part of everyday life in scientific work. Being open about these aspects of research was also important for creating safety for the young citizen scientists who were not experienced in conducting research. The team culture should also focus on taking good care of the participating youths and junior researchers, building support systems on all levels of the project and securing necessary safety, support and guidance along the way.

Further, as mentioned above, successful co- working is characterised by clear division of the tasks and to find good meeting formats. Physical in- person often work best in local settings because there are more opportunities for socialising and interactive discussions. Still, this can be combined with hybrid/online meetings. It is important to plan for flexible meetings as many participants are busy. Still, regular meetings and a fixed meeting time (e.g., every second week) to ensure stability in the work and progress. A fixed time also makes it easier for the researchers and participants to plan the activities. Short digital meetings between in person meetings and workshops may also be useful. It is also important to balance formal and informal meeting styles for the participating youths. Formal aspects can contribute to taking the project more seriously. Still, informal meetings or moments during the meeting may comprise important moments of trust and relationship building and knowledge generation and make it easier for the youths to be engaged and to feel safe (D.1.5: Murray et al., 2023). Youths need to feel good to be productive and motivated. Sometimes it also helps that youth are explaining to youth what the project is about.

Roles and Responsibilities

After defining the project's ground, it is time to establish roles and responsibilities. Managing expectations and demands is an important part of youth citizen social science. Clear roles and responsibilities are crucial for empowerment, being able to take on the role of a young citizen scientist and to conduct the research tasks in a safe way. It is also important to plan from the beginning which of the researchers is facilitating what, such as taking care of youth, engaging and supporting them. Establishing clear roles and responsibilities also requires a gender sensitive approach.

Defining the role and responsibilities for young citizen scientists may be more challenging in community based citizen social science compared to for example citizen science in school- settings conducted in collaboration with teachers because you work outside or across traditional institutional structures and settings. The YouCount project also showed that citizen social science can challenge the ordinary role of researcher by sometimes making the researcher feel that they are a mix of being a teacher, a family member, or a friend. They had to navigate between broader and more varied role dimensions at the same time keeping the research goals in mind. It can also take some time to find a good role.

As mentioned, an important task is to decide on the role and responsibilities of the citizen scientists, and to discuss with the youths what their participation and role will consist of and how they prefer to participate. This can be done in person in terms of a pre-meeting and/or combined with an informed consent letter before they decide to participate or not. It is also vital to be transparent about their role and the long- term aspect of the project (if participating from the start to the end) and transparent upon what kind of framework is being predefined by researchers, and what is left open for youth to be developed throughout the study.

Legal Requirements and Ethics

Legal and ethical requirements (such as recruitment and consent procedures, data processing and storage procedures) is also a key aspect when designing and running a youth citizen social science. As previously described, citizen social science implies social data.Such data are often of more personal nature and consequently with stricter ethics approval procedures and GDPR requirements. There are also stricter regulations for research involving minors and young people with disadvantages as they may be in a more vulnerable and dependent situation.

In YouCount, which is an EU project involving partners from different countries, we also experienced that the national regulations when it comes to research, age limits, and procedures for seeking ethics and data protection approvals could vary between the countries. It was therefore important to get an early overview of requirements and apply as soon as possible to avoid delays in the project. The larger the project, the more complicated procedures, and legal agreements. Potential legal issues may also vary by jurisdiction and need to be clarified with a legal expert. A joint responsibility agreement for data procession between partners can be useful to clearly address responsibilities between partners.

The experiences from the YouCount project also show that using digital devices in a citizen social science project involving minors may result in a request for a Data Protection Impact assessment (DPIA) from the supervisory authorities. The DPIA process often takes time and can delay the data collection period (Canto-Farachala et al., 2023). In the project we also learned that the use of open citizen social science devices such as the YouCount App is less common, and that the supervisory authorities may be unsure about how to assess them. We therefore found it useful to include an IT expert or to establish a local assessment team (including legal adviser, data protection and ethics experts and IT experts) at the university to support the data protection and ethics considerations and formal approval processes. Legal and ethics requirements related to travel with minors and young people to ensure safe travels and activities may also need to be taken into account.

As seen from the House of Youth Citizen Social Science, ethics is one of the pillars of the house. When conducting citizen social science, the whole team including the young citizen scientists will therefore need to learn basic principles for conducting the research in an ethically sound way and according to the GDPR. Ethics is therefore incorporated in the training courses and adapted to the age group.

Further, as professional researchers, it is crucial being careful not to put the young citizen scientists in too difficult situations during the research activities and to underline the right level of responsibilities if difficult situations occur. This requires close follow-up by the researchers. There may also be a need to secure the young citizens scientist's safety by underlining voluntariness and providing enough support (D.6.6: Pučėtaitė & Norvoll, 2021).

Still, as highlighted, ethics standards are not only secured by formal procedures but also the researchers' reflexivity and responsiveness during the research processes as well as demeanour in practice (Bracken-Roche et al., 2017; Hammersley & Atkinson, 2019; D.6.6: Pučėtaitė & Norvoll, 2021). Being respectful and polite; attentive to young peoples' verbal and non- verbal expressions of consent and treating people's information in a confidential and proper way, is crucial for conducting citizen social science in an ethically sound way.

Key Takeaways

- **Design for a youth-friendly project.**
  - Include the age and life-context of young people when designing the project.
- **Have clear goals for the project.**
  - Co-develop a clear vision and objectives for the project and establish sufficient resources and infrastructures.
- **Secure resources and good infrastructures but be responsive to new needs and support.**
  - Balance structure and necessary flexibility in project management. Adapt when necessary.
  - Think realistically to avoid frustration and overburdening.
- **Ensure a good research team and collaborative work.**
  - Take time to build a robust and stable team.
  - Take good care of yourself and the other team members.
  - Clarify roles and responsibilities in the team.
- **Mind all the legal and ethics requirements.**
  - Apply for necessary ethics and data protection approvals at an early stage.

FURTHER READING

The ten principles of CS (ECSA)
Documents – European Citizen Science Association (ECSA)

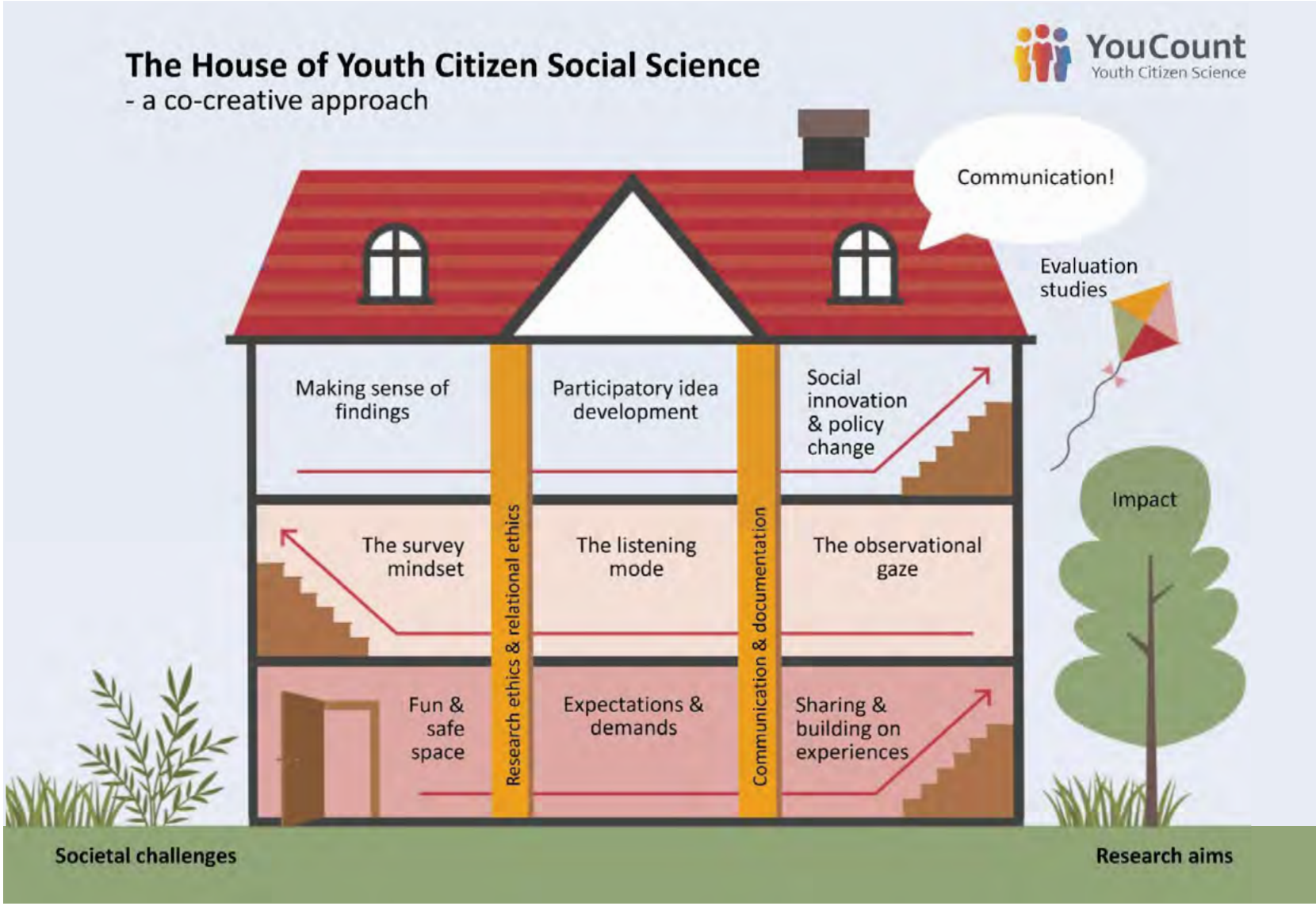
Mutual Learning Exercise on Citizen Science Initiatives - Policy and Practice
Mutual learning exercise - Publications Office of the EU (europa.eu)

Rasmussen, L. M., & Cooper, C. (2019). Citizen Science Ethics. ***Citizen science: theory and practice***, 4(1).
https://doi.org/10.5334/cstp.235

YouCount Toolkit

Welcome to the YouCount toolkit. Here, you will find various tools that researchers in the YouCount project have developed and used with young citizen social scientists. The tools are organized according to the House of Youth Citizen Social Science - a framework for thinking, planning, and doing citizen social science research projects with a co-creative approach.

You can also find the YouCount Toolkit online and download the Tools here.



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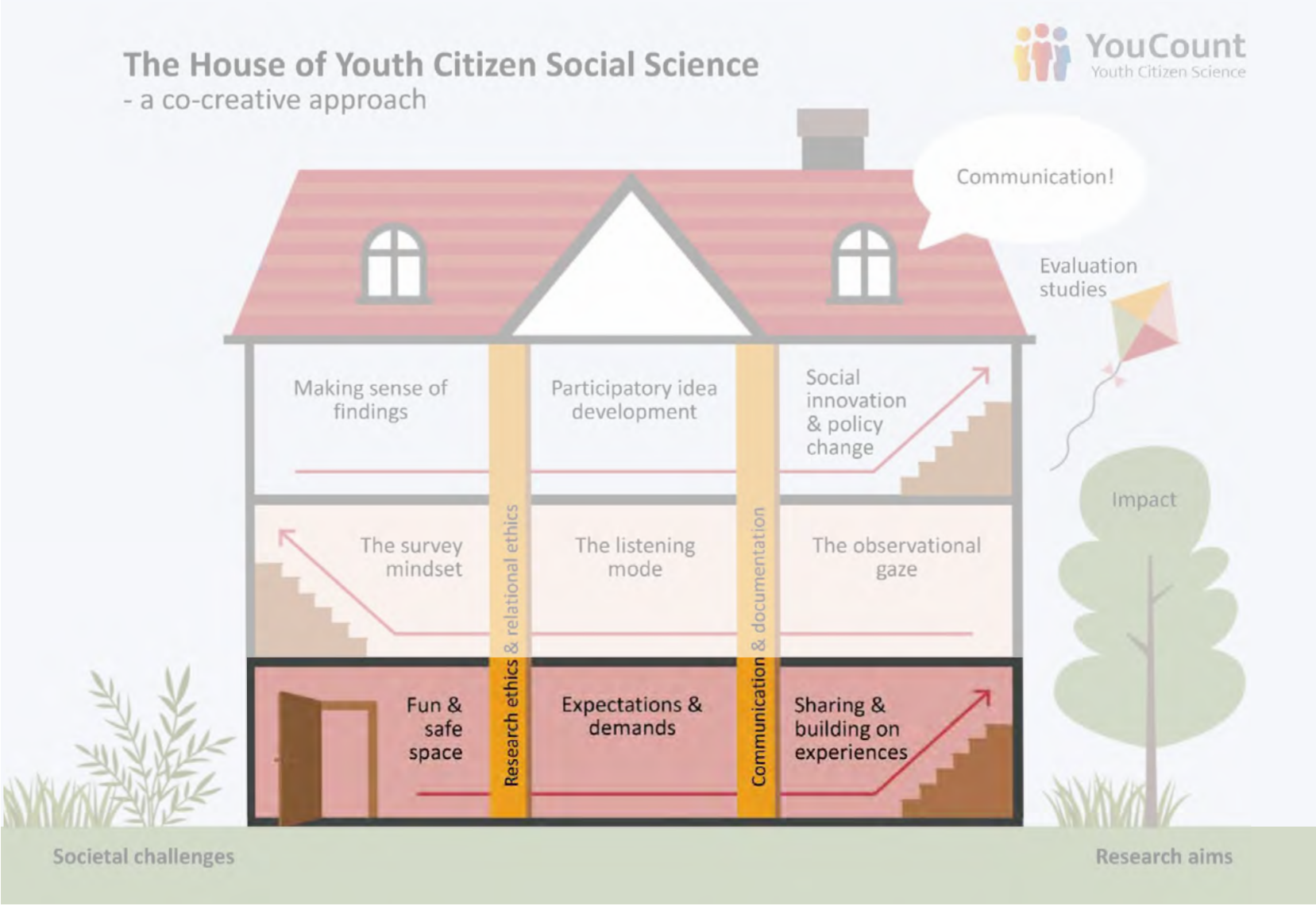
The groundfloor

How can you ensure that the social and relational aspects of teamwork are in place? In this section, you will find tools for training and building the ground floor.



Splot

Photo: Karoline Hjorth

Splot

Method for creating a safe space and learning about interview

Description

The splot method is developed by researchers at the Work Research Institute (AFI), Oslo Metropolitan University (OsloMet). The acronym SPLOT stands for Space, Person, Learning, Observation, and Track (Tråkk in Norwegian). Splotting requires minimal resources—just a sheet of paper and a pencil is enough. You are encouraged to write or draw symbols for places you love and share with others why these are good places for you. The goal is to engage children, youth, or adults in conversation about what is meaningful to them, and to experience mastery and influence on how they can enhance what is already good in their local environment and life in general. The form is open and combines seriousness with play. We always start with what we call a "personal splot," before moving on to more specific topics such as neighbourhood, community, school, etc.

Splotting has an equalizer effect, as everyone must draw and share with the other, the non-professional other. It's about transferring power between the expert and youth, at its best. It provides the youth with a repertoire for reflection on self, on the relation of self to spaces and places of meaning, and on arguments directed towards people in positions of power – 'What can you do to make my sense of social belonging stronger, to strengthen the physical and material impact on social lives in my neighbourhood, in a positive way?

How to use the tool

- **Individual:** Draw a small heart. Around the heart, you draw a wobbly line that surrounds the heart.
- **Individual:** Inside the wobbly form you draw and/or write the places, people and activities that make you feel good.
- **Two by two:** When everyone is finished drawing their own personal splot you interview the person sitting next to you about their splot.
- **Everyone:** What did you learn about each other? What was surprising? What did you have in common?
- **Everyone:** Make a splot-exhibition on an empty wall in the room.

Pictures from dialogue forum Norway/ Ildfluene

References / Read more

Hagen, A.L. & Osuldsen, J. (2021) Urban youth, narrative dialogues, and emotional imprints: How co-creating the 'splotting' methodology became a transformative journey into interdisciplinary collaboration i Stender, M., C. Bech-Danielsen & Hagen, A.L. (red.). Architectural Anthropology – Exploring lived space. New York: Routledge, kap.8, s.135-148.

Mini Fieldwork Challenge

Photo: Young citizen scientist Norway

Mini Fieldwork Challenge

Training exercise

Description

A mini fieldwork challenge is a tool for training young citizen scientists in conducting observations and interviews. In this tool, we have used 'hang-out spot' as the topic of investigation. For some projects, other topics might be more relevant, for example, observing a house, a bench, public symbols, etc.

Equipment: Notebooks and Polaroid cameras for documentation during the fieldwork exercise. Cardboard/large sheets of paper, markers, and post-its for summarising the exercise.

Picture of young citizen scientists during fieldwork in Norway. Photo: Young citizen scientist

How to use the tool

- Create groups of 2-3 people.
- Go out and find a hang-out spot in the neighbourhood.
- Observe the hang-out spot for five minutes (individually, no talking). Write down what you see.
- Group up and formulate 2-3 questions to ask someone based on your observations.
- Ask the questions to someone who is at the hang-out spot. Write down what you see and hear.
- After the exercise, the groups should summarise what they have seen and heard and create a cardboard presentation of their findings.
- Present and discuss: What were your questions, and why? What did you find? Was what you observed different from what you heard?

Role-playing

Photo: Susana Franco

Role-playing
Shifting perspective

Description

Role-playing is an opportunity for users to put themselves in someone else's shoes, representing specific real-life situations, interpreting and acting under a previously assigned role.

Equipment: All that is needed are human resources (more than three people), a space where the technique can be performed, and a pre-prepared script.

Photo from a rehearsal in the Spanish case

How to use the tool

- Get together with other people.
- Define the topic, the roles, and create the script. It can be something elaborate or just some general guiding points that define the situation that is going to be recreated.
- Cast the roles.
- Find a space where you can do it.
- Perform the role-playing.
- Discuss and comment on the dynamics.

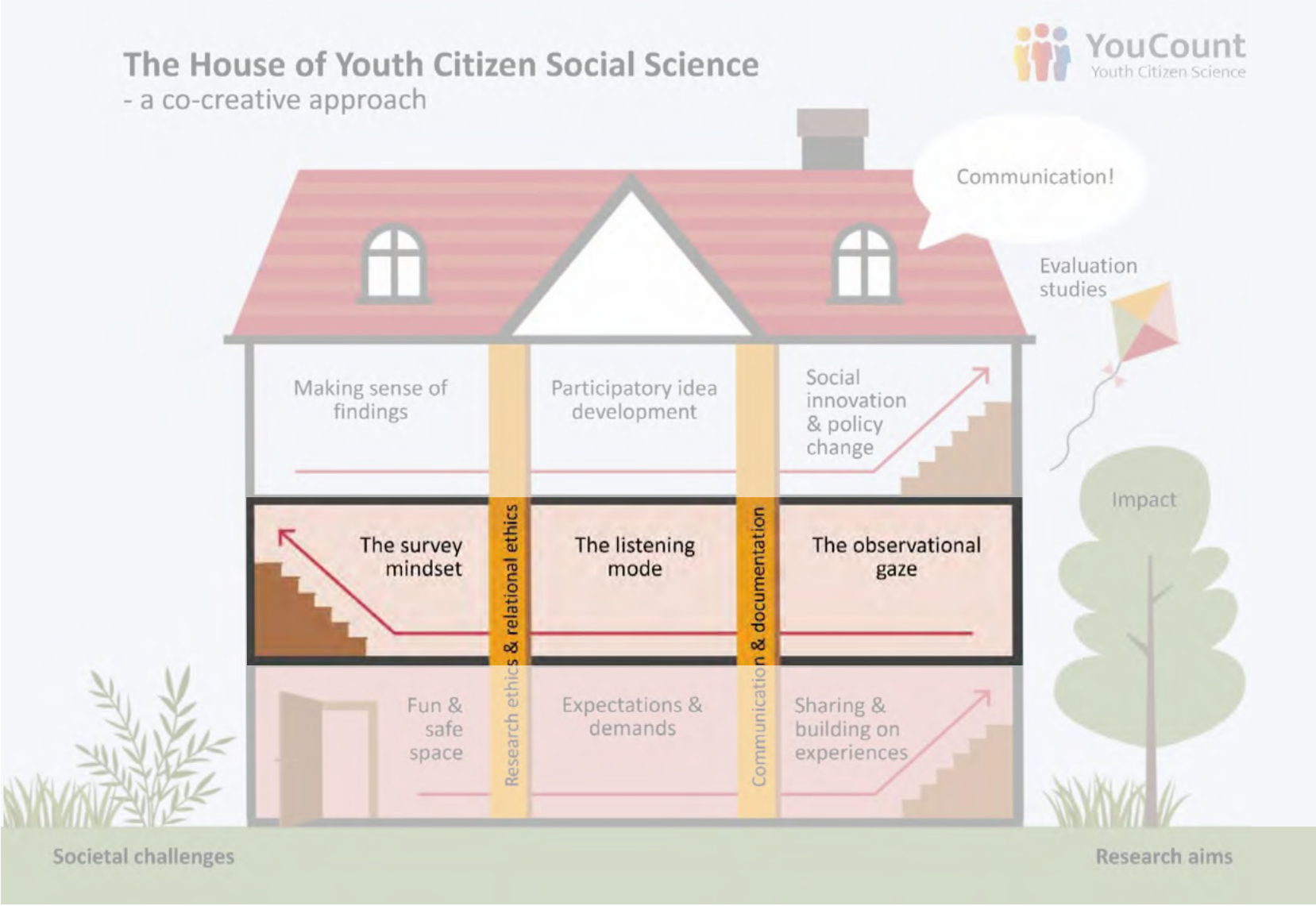
Example from the Spanish case

Role-playing was used as preparation for a meeting with stakeholders. Some of the young citizen scientists rehearsed their own roles, while others acted as some of the other participants (policymakers, journalists, etc.). The idea was that they could deliver with more confidence the parts that they had to explain and present during the meeting as well as test how they would react in different circumstances during the meeting (for instance, when being asked questions) so they could feel more confident.

One idea for a role-play was to engage Social Work students so they could exchange roles with young migrants. This would involve role-playing a situation where the students, acting as migrants, went for an appointment at the local social services, attended by a young migrant. The objective was for them to experience and understand each other's perspectives.

The first floor

How can you do participatory data collection with youth? In this section, you will find tools for the three approaches 'the survey mind-set,' 'the listening mode,' and 'the observational gaze'.



Data Collection Competitions

Data Collection Competitions

Making research fun

Description

The data collection competition is designed to make data collection fun for both researchers and young citizen scientists.

Equipment: Notebooks for taking notes during the interviews, a Polaroid camera or a regular camera for taking pictures, post-its, and large sheets of paper to summarise the data.

Photo of findings created by young citizen scientists in Norway.

How to use the tool

- Announce a pre-defined secret question (research question) or create a secret question together – what do we want to find out?
- Divide everyone into teams.
- Each team creates an interview guide that can address the secret question.
- Each team decides where they want to go to conduct their interviews.
- The teams conduct their research within a set time frame.
- When coming back, the teams summarise and analyse the data they have collected.
- The teams present their findings.
- Award points for the number of interviews and bonus points for creativity.

Example from Norway

In the Norwegian case, we arranged two data collection competitions with the citizen scientists. The goal was to collect data about other youths in the local area. When doing this, it was important that one of the professional researchers was part of the team. The professional researcher supported and encouraged the young citizen scientists, and they could help present the project to the people who were interviewed.

Co-creating Questionnaires

Photo: Ildfluene

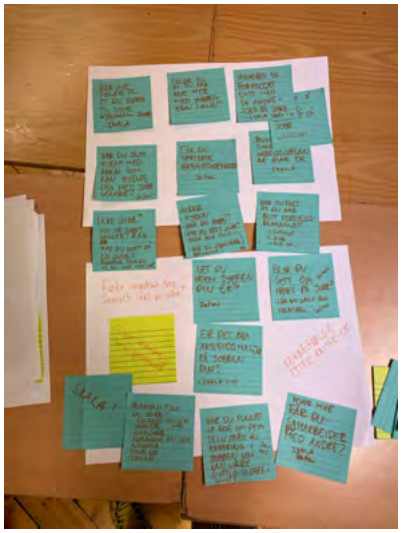
Co-creating Questionnaires

Participatory data collection

Description

Involving young citizen scientists in creating questionnaires ensures their views are at the heart of data collection. Their involvement helps make the questions clearer and more relevant for other young people. They should be included in all steps, from writing the questions to analysing the data. This inclusive approach goes further than usual methods that typically involve participants only in reviewing questionnaires before distribution.

Splot (see tool) can be used to explain the survey mindset: Count how many have the different categories in their splot and write it up on a large sheet/board. Then, discuss the findings with the youth.



Picture of questions for questionnaire developed by young citizen scientists in Norway,

How to use the tool

- Give a brief introduction to questionnaires as a research method. Here, you can use a survey about youth as an example. It is also possible to use splot (see above).
- Agree with the young citizen scientists on the number of questions to include in the survey.
- The young citizen scientists write questions they think are important on post-its and attach them to a large sheet of paper. Also, discuss the answer options for the various questions: yes/no, categories, or options to write in the answer.
- Discuss with the young citizen scientists what kind of background information is important to collect, such as gender, age, school, place of residence, etc.
- The young citizen scientists select which questions should be included in the final survey.
- Discuss ideas for how the survey can be distributed together with the young citizen scientists.
- Finalize the survey.
- Let the young citizen scientists test the survey and provide feedback before it is sent out.
- When the survey is complete, analyse the data together with the young citizen scientists.

Photo Walks

Photo: Hamza Nouali

Photo Walks

Tool for observing

Description

Photo walks are group walks with the aim of photographically identify relevant spots within the city. It is also an activity that strengthens relational and community ties.

Equipment: Cameras and/or mobile phones are needed (and comfortable shoes!). A space to sit down and discuss after the walk.

One of the photos taken at the photo walk

How to use the tool

- Gather a group of 4 or more people together.
- Clarify the topic of the photo walk.
- Agree on a route through the city.
- While walking along the selected route, take the opportunity to stop, talk and, most importantly, photograph images and places that are relevant to the topic and objective.
- When the route is over, stop at a place where you can comfortably sit (a park, a cafeteria, a cultural space, etc.).
- Start showing the identified spots.
- Discuss: Which sites have been identified as relevant for the topic and why?

Example from the Spanish case

We organised a photo walk with six people aimed at recording places where we felt included or excluded. Having previously agreed on the route, once together, we started to walk along it. Along the way, each one of us began to identify and photograph different spots with our mobile phones. Once the route was completed, we decided to sit down at the terrace of a bar to have a coffee and discuss the images we had taken. Everyone showed what they had photographed, explaining why they had done so, and questions of inclusivity and exclusivity were discussed.

Field Studies By Bike

Field Studies By Bike

Tool for new perspectives

Description

The field studies by bike tool are designed to bring actors into their local environment, quickly get around to different sites, and observe and talk with local stakeholders. This approach allows experiencing the neighbourhood from different angles, adding new opportunities and perspectives for reflection and discussion.

Equipment: Plan a bike-accessible route through the neighbourhood. Ideally, the route should enable participants to experience the diversity of the community. Provide notebooks and pencils for participants to take field notes during the trip and arrange meetings with local stakeholders at the various sites. It is beneficial to include a reflection break during the trip.

Photo from field studies by bike in the Danish case

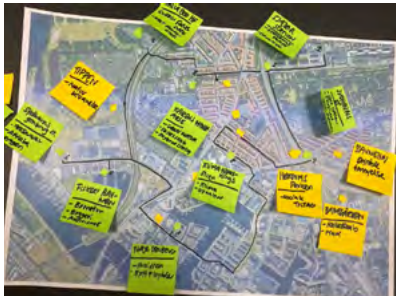


Photo from planning the fieldstudies by bike

How to use the tool

- Figure out possible places to go in the neighbourhood by bike.
- Make a bike route mapping the places.
- Find and agree on meetings with local stakeholders in the places.
- Provide notebooks and pencils before the bike trip and prepare questions for the stakeholders.
- Bike through the neighbourhood and talk with local stakeholders.
- Encourage to take notes and pictures during the trip (to be used in an analysis).
- Allow for a reflection break halfway through the trip (preferably with hot tea, coffee, and cookies).
- Facilitate a discussion session afterwards, reflecting upon experiences in groups.

Example from the Danish case

In the Danish case, the field trip was used in a school setting to get the youths out of the classroom and observe and work with challenges from their neighbourhood. In this way, bringing new perspectives to analyse possibilities and challenges for sustainable civic engagement was possible. The students were given information about the trip beforehand and a notepad and pencils. In the class before the field trip, the co-researchers were asked to write down questions for the stakeholders they were about to meet. Due to the cold day, we provided tea, coffee, and cookies during the bike trip for the youths to warm up and discuss their preliminary findings.

Mapping

Mapping

Place-based dialogue tool

Description

The mapping tool is designed to bring dialogue and reflection around a particular area. Having a map in front of you makes associations and experiences pop up in your mind. It brings forth tacit knowledge that can be difficult in a traditional conversation without tools. Using mapping provides a tangible format where a map and some simple additional 'playing' bricks can be added to the map during the conversation. The bricks enable a conversation about challenges in specific areas and where there are untapped opportunities. Furthermore, it can be used from the beginning to the end of a project to investigate where to find potential collaboration partners and research areas or where to implement innovations.

The method only needs a printed map of the area you want to investigate or are curious about and then loose bricks, for example, emojis, post-its, stickers, etc. That can be placed and moved around on the map. It can be used between a few or more people, creating negotiation and working as a boundary object if placed between several people.

How to use the tool

- Figure out what area you want to investigate.
- Print out a map of the area.
- Think about what the aim is for the dialogue and create ‘playing‘ bricks that support the aim.
- Consider who is going to participate and how.
- While using the tool, act as a facilitator and ask for detailed explanations regarding where the bricks are placed or what the chosen colour or mood signifies in the specific location.

Photos from two different examples using a mapping tool in the Danish case

Photovoice

Photovoice

Method for giving voice and promoting active participation

Description

The Photovoice gives voice to the participants to discuss their visions about a given topic, which refers to their daily experiences and develops their competence as agents of change. In this vein, this method has the potential to promote critical thinking and dialogue about issues that are felt as relevant by the participants, with reference to their community.

Participants take photos and discuss them, eventually producing different narratives about the main topic and its impact on their community, thereby rethinking their role within it.
The results of such a process can be presented during an exhibition through panels displaying the photos and captions selected as most significant by the participants. Local stakeholders and other citizens not involved in the Photovoice can be invited. Indeed, one of the main aims of the Photovoice is to enable participants to make their viewpoints visible to policymakers and the broader community, so their experiences can be included in planning social changes and improvements in their community.

Sample panel for the final exhibition from the Italian local case.

How to use the tool

You will need more than one meeting to do this.

Day 1:

- Give a short introduction to the main topic that will be addressed during the Photovoice and pose the main question about it.
- Provide participants with basic information on how to take good quality photos, and ensure everyone has a tool to take them (e.g., a camera, a smartphone). If necessary, provide participants with such a tool if they do not have one available.
- Ask participants to take 2-3 photos representing strengths and weaknesses related to the topic, and bring them printed to the next meeting.

Day 2:

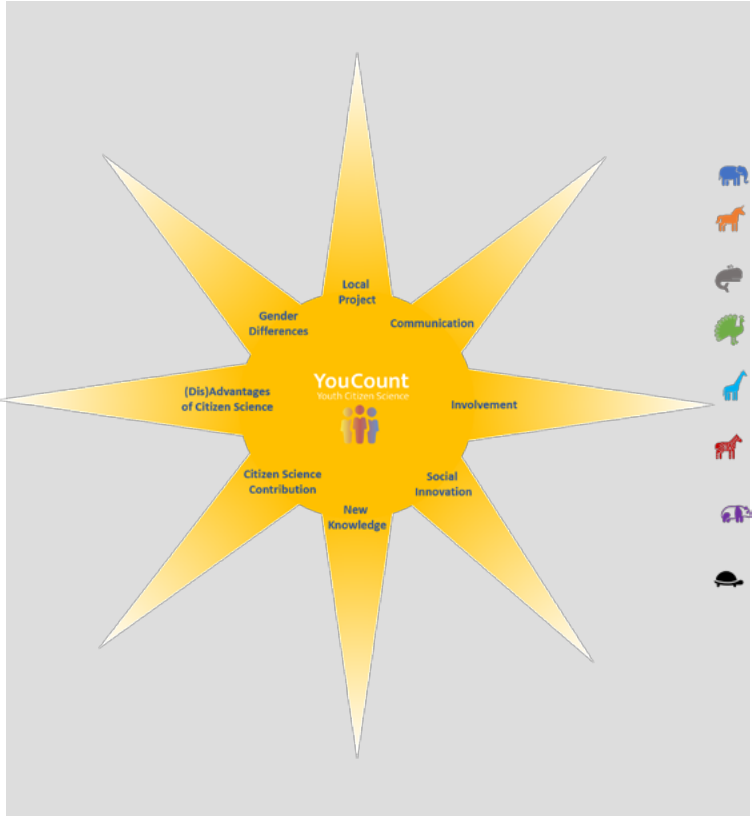
- Each participant shows their photos to others and explains why those elements are significant strengths or weaknesses to them with reference to the given topic.
- Ask participants to discuss and collectively select the most meaningful photos for the group, which will be included in the panels for the final exhibition.
- Encourage participants to collaboratively decide on the shared sentences and captions to be associated with each of the selected photos.

Day 3 (and more should you need them):

- Ask participants to work together to create the panels and identify local stakeholders to invite based on their collective ‹

References / Read more
Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health behavior, 24*(3), 369-387. https://doi.org/10.1177/109019819702400309

Focus Group Sun



Focus Group Sun

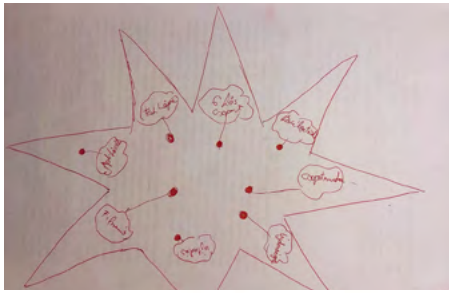
Tool for evaluation engagement

Description

The aim of this sun is twofold: (1) to provide an overview of topics the focus group will be about (these are the headings for the sunbeams) and (2) for citizen scientists to place themselves with a different colour, shape, sticker, emoji, etc. either close to the centre (Project-ID, here: YouCount) if they think the aspect (e.g., communication) is going well or more toward the end of the end of the sunbeam if the respective aspect is not going well for them/in their opinion.

The placement can be done by giving each citizen scientist a different colour, shape, sticker, emoji, etc. to place themselves. Important: please do not use photos of them or their name, so you can take a photo at the end of the workshop and still maintain data protection and anonymity.

At the end of the focus group, everyone should have placed themselves somewhere on each sunbeam and you should have discussed every sunbeam. Feel free to jump between the sunbeams as it suits the discussion. It may be that the citizen scientists talk already about, for example, involvement, when talking about communication, so there might be natural transitions.



The above sun is an example of an offline setting; the below sun is an example of an online setting.

How to use the tool

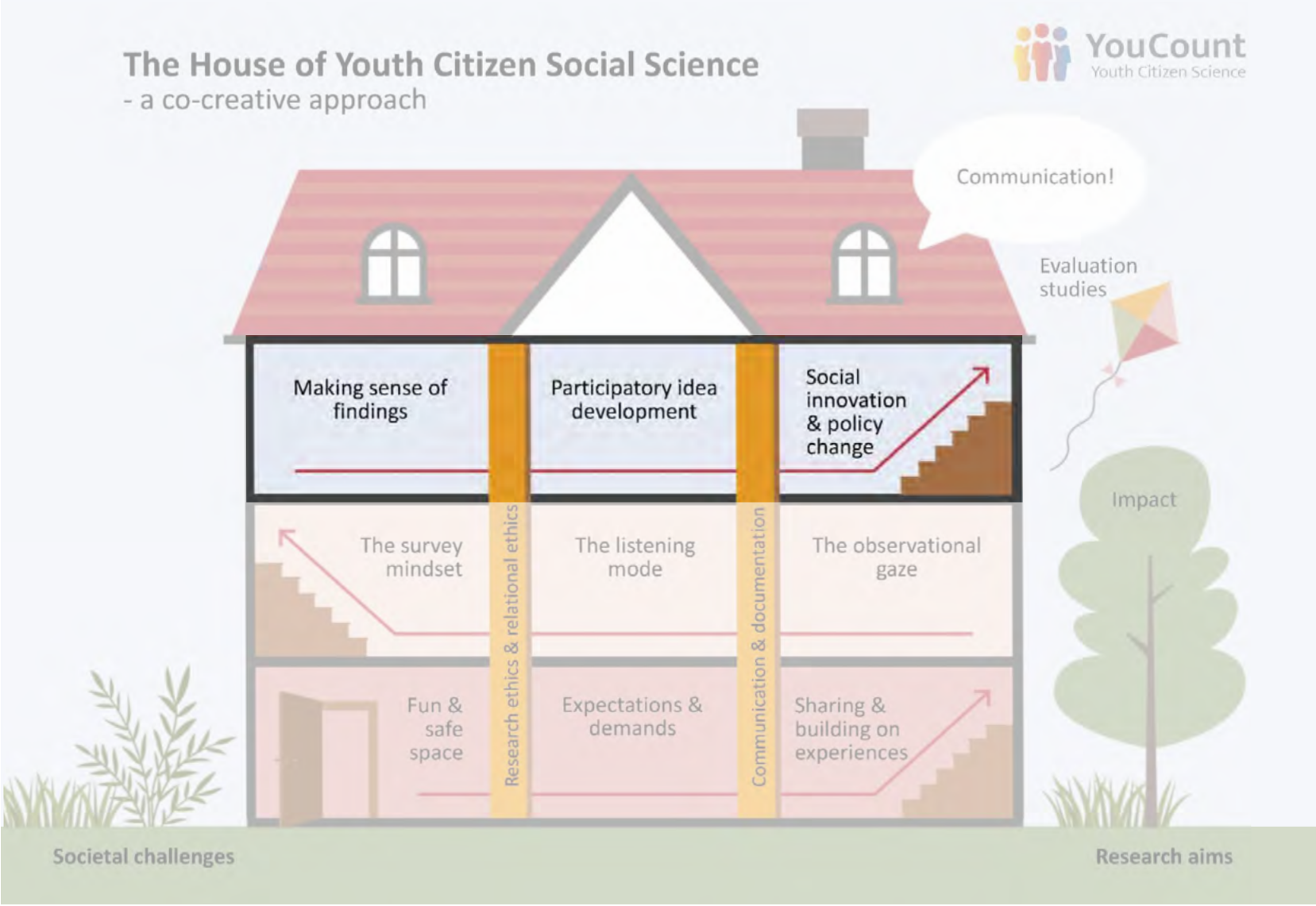
- You can give the citizen scientists a few seconds at the beginning of the focus group to mark in a different colour, shape, sticker, emoji, etc. for any of the sunbeams that they like where they would place themselves.
- You could then start by talking about the sunbeam that got the most placements.
- Since not everyone will have positioned themselves on that particular sunbeam, encourage those who did to explain why they chose the sunbeam they did.
- This leads to starting to discuss the respective sunbeam bullet point, and maybe even sub-bullet points, while you can ask the others to place themselves also somewhere on that sunbeam.
- Don't forget to photograph/screenshot the sun at the end or even multiple times during the focus group for documentation.

Read more

Saumer, M., Dietrich, I., and Matthes, J. (2023). D4.1 Cross-Case Evaluation Methodology, Analysis and Outcomes. Doi.10.5281/zenodo.10409684

The second floor

How do we reach for social innovations and policy change with youth? In this section you will find tools for working collaboratively to make sense of findings and to develop ideas together.



Association Cards

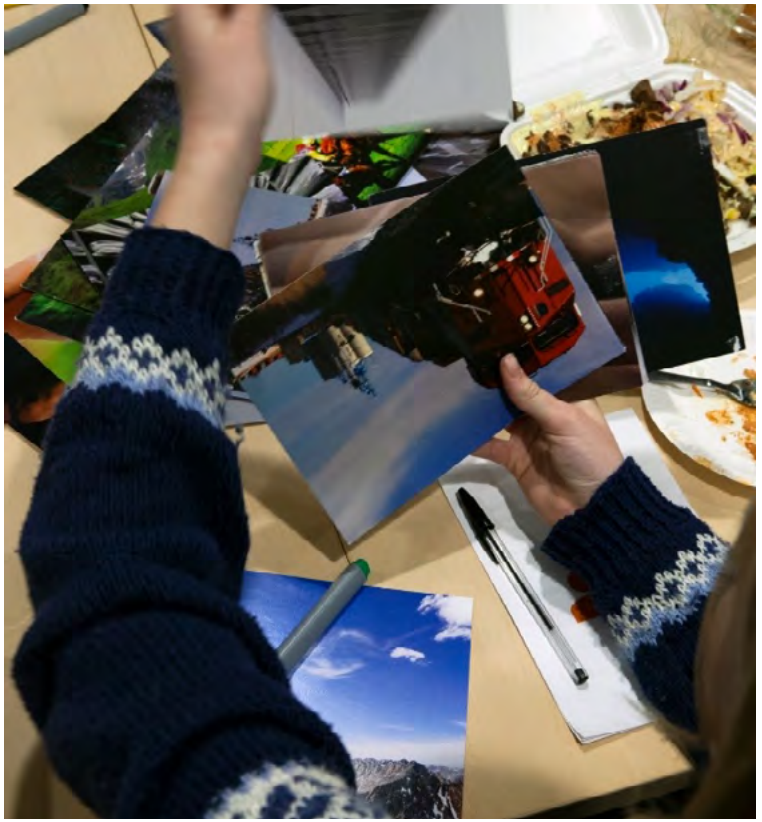


Photo: Karoline Hjorth

Association Cards

Tool for Wondering

Description

The association card tool is designed to facilitate collective conversations about abstract phenomena, experiences, feelings, expectations, and dreams.

Equipment: Print out a collection of images with both abstract and concrete motifs in A5 format, along with post-its. The exercise can also be conducted digitally, for which we recommend using the image database Pixlr and the collaborative whiteboard Jamboard (free).

Photo from workshop in the Norwagian case

How to use the tool

- Spread the cards out on a table or on the floor.
- Give everyone a task, for example, "Find a picture that expresses how it feels when you are socially included"
- Allow everyone to pick one or more pictures each. It's important that everyone, including facilitators, participates in the exercise.
- Ask everyone to write a post-it with three keywords that describe or explain why they chose that particular card.
- Attach the post-its to the cards and hang the cards on the wall.
- Take turns asking: What have the participants chosen and why? Are there similarities or significant variations in the selection? Has anyone chosen the same picture but with different keywords?
- Discuss: How can these abstract phenomena be transformed into physical forms or concrete wishes and needs?

Example from the Norwegian case

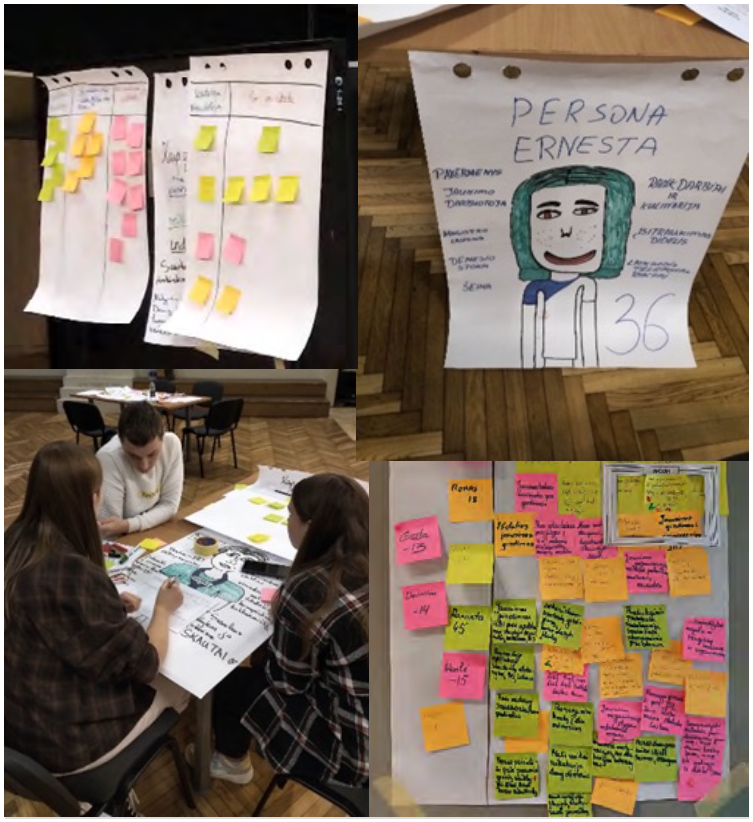
In the Norwegian case, we used association cards to facilitate a collective exploration of embodied experiences related to social inclusion. The goal was to develop a shared understanding of the concept among the young co-researchers and the researchers. To answer the question, 'How does it feel to be socially included?' all participants selected one or two photos that best captured the feeling they experience when socially included. Everyone shared their picture and thoughts in smaller groups and created ‘splots’ (see tool), on which they wrote or drew specific locations where they had experienced social inclusion. Afterwards, they collectively summarised their discussions, delved into what it means to be socially included, and addressed the question, 'What is social inclusion?

Design Thinking

Read more

Design Thinking for Educators Toolkit by IDEO,

Available at: https://page.ideo.com/design-thinking-edu-toolkit



Design Thinking

Tool and a strategic approach to address challenges

Description

Anchored in empathy, Design Thinking encourages individuals to immerse themselves in others' experiences, thereby understanding and solving challenges from alternative perspectives. The overarching goal of using the method with youth was to equip them with the tools to respond innovatively to the multifaceted challenges of social belonging in a rural area. The method unfolds across six distinct stages (understand-observe-perspective taking-imagine-protype-test), each meticulously designed with a specific focus and lasting a certain time period. Application of the method may take from several months to one day, depending on the formulated challenge.

How to use the tool

- **Formulate the challenge:** The challenge formulation is a pivotal process that starts with the question "How could we...," followed by a verb indicating the necessary action, the specific problem situation or area of activity, and keywords describing the contextual reasons for change.
- **Stage One - "Understand":** Participants embark on a comprehensive analysis of the challenge. The focus is on gathering existing information through secondary data analysis.
- **Stage Two - "Observe":** Participants delve into understanding the feelings, thoughts, and experiences of those connected to the challenge. Empathy takes the central stage. The aim is to gain a profound understanding of individuals' lives, values, thoughts, and emotions within the challenge area.
- **Stage Three - "Perspective-taking":** The stage focuses on the challenge from the perspective of the service user or the object in question. Teams then decide which information will be used to develop solutions, ultimately formulating a user-centric "point of view" that encapsulates the user, statement, and need. It ends in creating a detailed "Persona".
- **Stage Four - "Imagine" (or "Ideate and Propose"):** The goal here is to generate a range of ideas that can be further developed to solve the problem.
- **Stage Five - "Prototype":** Teams select a specific challenge area that aligns with the user's needs and embark on creating a tangible representation of the solution. Prototyping helps refine and clarify abstract ideas.
- **Stage Six - "Test":** Testing provides valuable insights for developers and users, fostering empathy toward the user. Teams present their prototype to potential users in a format of their choice. This phase ensures that the proposed solution is closely aligned with the real user's needs and preferences before moving forward with implementation. Gathering feedback from the other participant groups helps finalise the solution before starting to implement it.

Example from the Lithuanian case

In the **Lithuanian case,** the Design Thinking methodology was used in the Dialogue Forum activities. The formulated challenge *How could we encourage young people to get involved in social activities in their local communities in an age of individualism and information technology?* in a one-day programme resulted in the solutions of engaging in the reg organization and establishing a local chapter in one of Panevėžys district towns and participating in the youth centre's and cultural centre's activities.

Living Lab

Living Lab

Method for creating a safe space

Description

The social living labs are very promising in revealing the social innovation dynamics. The idea of living lab as social innovation dwells on the idea of open innovation network comprising diverse actors, activities, and resources (Leminen, Nystrom& Westerlund, 2020). As discussed in academic literature, living labs involve a group of end-users in generating products, services or policies (Hughes, Foth, Mallan 2019). Dekker, Contreras & Meijer (2020 p.1210) argue that key to living labs is that the process can take spontaneous turns and yield unexpected results, meanwhile, the end-result of the process is not fixed at the beginning. Social living labs are a good platform for informed learning and appear as an educational innovation responsive to local community needs.

How to use the tool

- **Initial stage** - Select the idea/ topic of the living lab, create a group of stakeholders from different levels of governance and invite them to participate in the living lab to share their views, information and knowledge about the topic.
- **Exploration** - engaging the stakeholders in live discussion, moderating their approaches to the selected topic.
- **Evaluation** – assessing the experience and knowledge using the data collected in the previous stages.

Example from the Lithuanian case

The living labs organized in the framework of the YounCount project had the preliminary results expectations to encourage the partnerships of the stakeholders and increase the involvement of young citizen scientists in the local community. The expected outcome was that during the living lab, the stakeholders strengthened community ties and increased mutual cooperation. During the living lab discussion, young citizen scientists were recognized by policymakers as having specialized knowledge from a user perspective and this encouraged them to involve youth in local decision making processes as their experiences and preferences can become part of the decision that is being taken.

Deliverables from the YouCount Project

D1.1 Internet list of stakeholders

Butkevičienė, E., Pučėtaitė, R., Budrytė, P., Vaičiūnienė, J., Norvoll, R., & Hummer, P. (2021). D1.1 *Internet list of stakeholders (Revised)*. Zenodo. 10.5281/zenodo.7567746

D1.2. Report on the conceptual, innovative, evaluation and ethical framework for youth citizen social science

Butkevičienė, E., Pučėtaitė, R., Budrytė, P., Vaičiūnienė, J., Norvoll, R., Canto, P., U, L., Juricek, S., Freiling, I., Matthes, J., Jørgensen, M. S., Pataki, G., Czeglédi, A., Gatti, F., & Procentese, F. (2021). D1.2. *Report on the conceptual, innovative, evaluation and ethical framework for youth citizen social science*. Zenodo. 10.5281/zenodo.5810259

D1.3 Methodological Framework for Data Collection and Analysis.

Ridley, J., Brattbakk, I., Pataki, G., Czegledi, A., Procentese, F., Gatti, F., & R, N. (2022). *D1.3 Methodological Framework for Data Collection and Analysis*. Zenodo. 10.5281/zenodo.6303118

D1.4. Policy brief: Youth Citizen Social Science for social inclusion

Butkevičienė, E., Pučėtaitė, R., & Norvoll, R, Canto, P. (2022). *D1.4. Policy brief: Youth Citizen Social Science for social inclusion.* Zenodo. 10.5281/zenodo.6947369

D1.5 Practices to Empower Young Co-Researchers in Citizen Social Science

Murray, C., Göbel, C., & Butkevičienė, E. (2023). *D1.5 Practices to Empower Young Co-Researchers in Citizen Social Science.* Zenodo. 10.5281/zenodo.10052911

D2.1 Collaboration with ethical boards and secured formal approvals on local levels.

Ridley, J., & Norvoll, R. (2022). *D2.1 Collaboration with ethical boards and secured formal approvals on local levels*. Zenodo. 10.5281/zenodo.5920572

D2.2 Open data concerning social inclusion provided on the project homepage – Emerging findings.

Norvoll, R., Plassnig, S. N., & Brattbakk, I. (2022). *D2.2 Open data concerning social inclusion provided on the project homepage – Emerging findings.* Zenodo. 10.5281/zenodo.6677557

D2.3 Meta Report of the YouCount Experiences with Case Study Implementation.

Ridley, J., Turda, M., Brattbakk, I., & Norvoll, R. (2023). *D2.3 Meta Report of the YouCount Experiences with Case Study Implementation.* Zenodo. 10.5281/zenodo.10417001

D3.1 Report on Citizen Social Science and Social Innovation: Analysis Based on YouCount Case Study Reports. YouCount project.

Pataki, G., Czeglédi, A., & Butkevičienė, E. (2023A). *D3.1 Report on Citizen Social Science and Social Innovation: Analysis Based on YouCount Case Study Reports. YouCount project.* Zenodo. 10.5281/zenodo.10053311

D3.2 Meta-report on the typology of drivers and model for social inclusion. YouCount project.

Pataki, G., Czeglédi, A., Ridley, J., Turda, M., Procentese, F., Gatti, F., Brattbakk, I., Landsverk Hagen, A., & Jørgensen, M. S. (2023B). *D3.2 Meta-report on the typology of drivers and model for social inclusion. YouCount project.* Zenodo. 10.5281/zenodo.10230577

D4.1 Cross-Case Evaluation Methodology, Analysis and Outcomes.

Saumer, M., Dietrich, I., & Matthes, J. (2023). *D4.1 Cross-Case Evaluation Methodology, Analysis and Outcomes.* Zenodo. 10.5281/zenodo.10409684

D4.2 Open evaluation data of WP4:
YouCount open data from the evaluation – current stand
Freiling, I., Saumer, M., & Matthes, J. (2022). *D4.2. Open evaluation data of WP4: YouCount open data from the evaluation – current stand.* Zenodo. 10.5281/zenodo.6767936

D4.3 Costs and benefits of citizen social science.
Franco, S. (2024). *D4.3 Report on the costs and benefits of Citizen Social Science: Analysis based on YouCount experience.* Zenodo. (In print)

D4.4 Report on impact assessment of YouCount
Lorenz, U., Norvoll, R., García, I., Franco, S., Canto, P., Saumer, M., & Matthes, J. (2023). *D4.4 Report on impact assessment of YouCount.* Zenodo. 10.5281/zenodo.10410662

D5.1 Project identity and website
Essletzbichler, D., & Hummer, P. (2021). *D5.1 Project identity and website.* https://www.youcountproject.eu/resources/project-reports

D5.2 Project Leaflet
Lorenz, U., Valle, N., Garcia, I., Canto-Farachala, P., & Franco, S. (2021). *D5.2 Project Leaflet.* Zenodo. 10.5281/zenodo.5136911

D5.3 Final Project Conference
Norvoll, R., & Plassnig, S. N. (2023). *D5.3 Final Project Conference.* Zenodo. 10.5281/zenodo.10409335

D5.4 Handbook and toolkit for youth citizen social science
This handbook. (In print)

D5.5 Policy brief concerning social inclusion
Lorenz, et. al (2024) *Youth Citizen Social Science as a Pathway for Youth Social Inclusion.* Zenodo. (In print)

D5.6 List of Planned Participation in Events
Lorenz, U., Canto, P., Franco, S., & Norvoll, R. (2021). *D5.6 List of Planned Participation in Events (Revised version).* Zenodo. 10.5281/zenodo.7540776

D5.7 Continuous, updated DEC and stakeholder engagement plan, and report on DEC activities
Canto-Farachala, P., Lorenz, U., Franco, S., Brounéus, F., Norvoll, R., & Hummer, P. (2021). *D.5.7 Continuous, updated DEC and stakeholder engagement plan, and report on DEC activities.* Zenodo. 10.5281/zenodo.4812107

D6.2 Data Management Plan
Norvoll, R. (2021). *D6.2 Data Management Plan.* Zenodo. 10.5281/zenodo.5141979

D6.3 IPR plan
Norvoll, R., & Nedberg, H. (2021). *D6.3 IPR plan.* Zenodo. 10.5281/zenodo.4720474

D6.5 Final report on ethical issues
To be uploaded in Zenodo by January 31, 2024 (In print)

D6.6 Recruitment and consent procedures
Pučėtaitė, R., & Norvoll, R. (2021). *D6.6 Recruitment and consent procedures.* Zenodo. 10.5281/zenodo.5141992

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