YouCount
Youth Citizen Science

D2.3

Meta Report of the YouCount Experiences with Case Study Implementation

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

This deliverable describes what hands-on Youth Citizen Social Science (Y-CSS) looks like in practice in the YouCount multiple case study. Using data primarily from individual case reports from consortium partners, it compares and contrasts the experience of implementation across the 10 cases of Y-CSS. It builds upon the conceptual and methodological frameworks in D1.2 and D1.3, the ethical framework and work securing ethical approvals established in D2.1, the D1.5 Report from ECSA workshops, and the strategy for evaluating Y-CSS. A summary of ethical challenges and how these were dealt with will be elaborated upon in the upcoming D6.5 Ethics Final Report by January 31, 2024.

The vision of YouCount is twofold, addressing and combining both the scientific and societal needs of our time. The scientific *vision* of YouCount is to strengthen the transformative and participatory aspects of citizen science (CS) and social science, by enabling citizen participation in all facets, reaching out for a more egalitarian way of conducting science. The societal *vision* of YouCount is to contribute to create inclusive and innovative societies for European youths and to empower them in promoting active citizenship and a just and equitable future, particularly for youths with disadvantages.

Table 1: Revision history

VERSION	DATE	CREATED BY	COMMENTS
1.1	20/12/23	UCLan	First draft sent out for review of co-authors, case partners and scientific reviewer
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Table 2: Terms and Abbreviations

ABBREVIATION	FULL TERM
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)
D	Deliverable
EC	European Commission
EU	European Union
ICT	Information and Communications Technology
LL	Living lab
PAR	Participatory action research
RRI	Responsible research and innovation
R-YCS	Young citizen scientists participating in the research team
SME	Small, medium enterprises
UN-SDG	United Nations Social 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

Executive Summary

This D2.3 Meta Report of the YouCount Experiences with Case Study Implementation is rooted in WP2 and the implementation of hands-on youth citizen social science (Y-CSS). In particular it addresses the work of Tasks 2.1 to 2.10 which include laying the foundations and planning multi-disciplinary research teams that include professional researchers, students and young people as Youth Citizen Scientists (YCS), recruiting and engaging YCS, students and stakeholders, developing and refining research methods to explore social inclusion with YCS and conducting co-creative research with young people. The primary focus is on case experiences with implementing the social inclusion sub study. It therefore provides details of the 10 local cases in nine countries in a multiple case study of co-creative Y-CSS in Europe and their experiences. The cross case thematic analysis builds on the individual case reports, extracts from the evaluation self-reports and notes from consortium or WP2 discussions.

This Report comprises six parts: (1) background and contextual overview of YouCount's aims and intentions in implementing the multiple case study of hands-on Y-CSS; (2) planning and establishing Y-CSS; (3) recruitment, training and support of YCS; (4) methodologies adopted by the local cases including the designs, methods and data analysis conducted; (5) what co-creation meant in practice; (6) summary and conclusions.

The main target groups for this Deliverable are those interested in how Y-CSS can be conducted in practice, either as practitioner, scientists or evaluator of best practices.

1 Background and Context

1.1 YouCount Project

YouCount was a three-year EU project funded under Horizon 2020, the Science with and for Society (SwafS) programme. The overarching objective of YouCount was 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. The project aimed to develop, try out and validate an interdisciplinary conceptual and methodological framework for conducting Y-CSS in practice (Ridley et al., 2022; Butkevičienė et al., 2021). This development was achieved through several sub- studies:

- Developing a conceptual framework for Y-CSS through literature reviews and multilevel stakeholder involvement (WP1),
- A multiple case study of 10 local case studies in nine countries across Europe (WP2 & 3). The main ambition of the multiple case study was to conduct co- creative research with young people and stakeholders in living labs (LL) and utilise a variety of methods adapted to the individual case projects.
- A systematic process and outcome evaluation- and impact study based on the multiple case study, both utilising a mixed-methods design and an innovative costs and benefits analysis of using CSS as a scientific approach (WP4)
- Maximisation of social and scientific impacts through various dissemination-, exploitation- and communication (DEC) activities from local to international levels.

Figure 1 Sub-objectives YouCount project

Figure 2 Local case design

1.2 Citizen Science and Citizen Social Science

Collaboration between professional researchers and lay persons has a long historical tradition back to the 1890s in the field of natural, environmental, historical and health field. What is referred to as **citizen science (CS)** is often described as scientific activities in which non-professional scientists volunteer to participate in data collection, analysis, and dissemination of a scientific project (Haklay, 2013). This expands public involvement in science and research and supports alternative models of knowledge production (Hecker et al., 2018). In recent years, CS has been promoted by the EU, for example, through the SwafS programme, as a promising scientific approach for opening science to society and to democratise society and science relations. It is also seen to support inclusion and citizen participation in the generation of knowledge, policymaking, and social innovations (e.g., European Commission, 2016). Still, CS is characterised by different historical roots, developments, and expansion (Tauginienė et al., 2020). Empirical studies (Hecker et al. 2018) also show that there is uneven distribution of CS practices within Europe with the domination of Western European countries and comparatively small number of CS projects in Central and Eastern Europe (such countries as Lithuania or Hungary).

Overall, CS represent a diverse disciplinary field in science reflecting different scientific paradigms and theoretical approaches. However, as Morgan (2021) points out, not only is CS a scientific approach it is also characterised by material practices and infrastructures, such as locations (working in the field, a museum, pub/coffee houses, homes or in the labs), access to resources, research materials or choice of methodologies. These dimensions are important when considering hands- on CS. A core characteristic of CS is also its collaborative nature compared to traditional research models in academia. Involvement in CS thereby has the potential to impact on participants' agency in the political and societal realm, thus having broader social and political outcomes for the participants than scientific dimensions.

Citizen social science (CSS) is defined more specifically as scientific research in the humanities and social sciences, carried out in cooperation between professional and non-professional researchers (Göbel et al., 2022). CSS brings together social science researchers conducting CS projects and researchers with a background in CS focusing on social issues. Thus, they apply and integrate social science methodologies and theories in their research (Thomas et al.,2021). The terms CSS are often associated with some CS activities: (1) a form of CS in the social sciences or (2) one that has a specific focus on the social aspects of CS (Albert et al., 2021). Scientifically, CSS is often based in the long tradition for participatory and emancipatory (action) research in the social sciences and the differences between CSS and PAR are often blurred. This means that CSS is also seen as more than social science methodologies, but also social issues or concerns raised by groups of citizens and the ways in which these produce new scientific knowledge. This may have important implications in terms of giving voice to under-represented or vulnerable groups and thus having the potential of being a powerful practice for both the inclusion of marginalised communities and the design of new evidence-based policies supported by the participation of citizens (Albert et al., 2021).

CS projects in the humanities and social sciences have been less common or integrated as part of natural science or environmental CS projects (Tauginienė et al., 2020). However, CSS to meet societal challenges and to include underrepresented groups as a way to strengthen participatory democracy has increased significantly in recent years (Reiersen, 2022). In the last few years, several projects have been funded to explore and consolidate CS in the social sciences and humanities. However, the scope of these CSS projects varies considerably, and they are often related to develop more knowledge of a social issue or respond to a social need in society, such as environmental problems or migrant issues, or they are linked to policymaking (Göbel et al., 2022). This development is reflected in the growing literature of CSS. A review of the literature finds that most CSS studies have focused on CSS as a scientific paradigm, its' contribution to knowledge generation or public policymaking and issues of concern held by civil society groups (Göbel et al., 2022). They find that much of the existing research is strongly programmatic in character, for example by focusing on the potential benefits of CSS for research, mobilising research data and new experimental methods, mediating between science and the public, increasing impacts, or

overarching discussions related to specific challenges in relation to conducting CSS research (ethics, motivation etc). Detailed descriptions of how to conduct CSS in practice is scarcer.

A considerable amount of CS projects involves children and youths, particularly in school-settings even if there are also some community-based CS projects (Ballard et al., 2017). Yet, these projects often include younger children or young people and focus more on educational outcomes than in the YouCount project, for instance, that has a stronger focus on young teenagers and young adults (13-29 years) and broader social and political outcomes. However, there is an increased focus on youth participation in policymaking and research more generally, and with a growing trend of **Youth CSS.** Traditionally, research into CS finds that there are lower levels of engagement among younger adults (e.g., 25–34 years) compared to middle-aged and older people and therefore, there is less knowledge about what motivates and engages young people (especially those not well-known to science/CS) to participate in CS projects (Constant & Hughes, 2023). Many of the young people participating also tend to be from middle-class backgrounds. There is thus a need to broadening diversity in CS through the engagement of young people from different backgrounds as there can be a range of benefits for young people emanating from their participation in CS including: educational and learning opportunities, emotional and physical benefits and improved interpersonal and social skills (Saumer et al., 2023). Diversifying youth involvement in CS also requires targeted strategies, for example, identified as: overcoming logistical constraints, raising awareness and improving communications, overcoming programmatic and organisational issues, enhancing social opportunities, diversifying CS roles and creating tangible impacts.

Since the involvement of diverse groups of young people in CS and CSS is less common, in particularly those often seen as 'further away from science', there is a need to further develop participatory research approaches that can include and engage youths in research and innovations. Further, conducting co-creative and participatory CSS with young people, including those at risk of exclusion, raises many ethical concerns and needs for closer considerations to how Y-CSS can be done in practice in an ethically sound way. There is thus a need to develop more knowledge of how scientific challenges unfold and can be dealt with in social science research as a part of conceptualising and expanding CSS. In this way, the YouCount project can contribute to generating further knowledge about how CS can be conducted in a way that maximises social inclusion of young people from disadvantaged backgrounds in an ethically sound way.

1.2.1 Need for new knowledge

The above overview of the literature demonstrates that there is less research on what is being done in practice and at local level when conducting both CS and CSS projects or activities with young people, and further what characterises these activities and participant involvement. The need for more knowledge of the practical and material aspects of participatory CSS was confirmed in a recent meta-review of CS literature (Tauginienė et al., 2020) which confirms that many CSS

projects have been of more theoretical nature. This is similar in relation to Responsible Research and Innovation (RRI) whose origins are in science philosophy or policy. There is thus a need to develop more (experimental) knowledge of how to do CSS at local level – what the EU has called 'hands-on' Y-CSS.

There is a need to strengthen the knowledge of how social science and humanities could provide methodological frameworks to the growing field of CS and how the alleged added value of social science approaches in CS practice could be better deployed. How can meaningful CS participation of young people be organised in the social sciences? How can we develop a role for the participants as young citizen social scientists (YCS)? How does the involvement of citizens in social research impact society and how can this impact be measured? This particularly applies to young people and those often further away from taking part in research and innovation on social issues, including CSS.

1.3 YouCount Aims

The conceptual framework for Y-CSS in the YouCount project draws on a combination of CS approaches based in the UK tradition of CSS (Irwin, 1995) focusing on the needs to democratise the social sciences by including citizens' concerns and considerations and combining this approach with participatory action research (PAR), youth PAR and community PAR in the social sciences (Ridley et al., 2022; Butkevičienė et al., 2021). This framework is based on a vision for conducting co-creative CSS to democratise science and scientific knowledge production, to enhance social science- and society collaboration to increase knowledge of social inclusion (social issues) and create positive social change. The YouCount study was concerned with how we translate this vision into actual research practices.

As mentioned above, the YouCount project has conducted a multiple case-study consisting of 10 hands-on Y-CSS projects in nine countries involving young people from a broad age span from 13 to 29 years (most were 18- 25 years). The young people participating as YCS were from both rural and urban areas and from diverse backgrounds including migrants, refugees, and disabled young people, often described as being at risks of social exclusion. The multiple case study can thus contribute to more empirical knowledge of how to work in practice to open up CSS to a broader and younger population, and how this can be done in various local and national contexts across Europe. To explore important aspects of hands-on Y-CSS through the multiple case study, we include the key physical and social dimensions of CSS as described above, including:

- How an infrastructure for co- creative Y-CSS can be built when it comes to establishing Y-CSS on local level, the necessary resources allocated and securing good project management.
- Which recruitment, engagement methods and collaborating methods can be used that contribute to include young people in research and innovation in a meaningful and beneficial way?
- How can young people often further away from science and innovation be included in Y-CSS?
- How can we use Y-CSS in practice to co-create more knowledge of social issues and contribute to positive social change and inclusion through innovation and policymaking?
- How can we develop a meaningful role as co-researcher/YCS in co- creative or participatory Y-CSS? What will this role(s) look like? What kind of training and support are needed to empower and enable young people to take on a role as YCS?
- How can we ensure peer support in a good way?
- How can we establish and collaborate with local stakeholders to stimulate civic engagement, facilitate innovation and informed policymaking to enhance social inclusion?
- Which methods can be suitable for Y-CSS and how can we use these methods in an ethically sound way?
- Which challenges occur in practical CSS and how can these be dealt with or overcome?

1.4 Report Aims

As described above, while there is a growing literature about CSS, community-based CS and Y-CSS and how to be more inclusive and reach those groups that are considered 'furthest from science' as YCS, there are still limited studies discussing and detailing experiences with how to set up a CSS project with young people in practice for increased social inclusion. The main aim for this report, therefore, is to provide rich descriptions of how the 10 cases have implemented the project's ambitions and put into practice hands-on Y-CSS in a range of country contexts and with different groups of young people. It analyses data from individual case reports, documented discussions in WP2 meetings, and from extracts from the evaluation self-report data to present a picture of how the 10 cases planned and established their research teams and studies; how they engaged with young people as young citizen scientists; what co-creation meant in practice; which research approaches and data collection methods were used in the social inclusion sub studies to explore with young people their understanding and experiences of social inclusion – specifically of participation, belonging and citizenship. Ethical research practices in the social inclusion sub study are the subject of a future YouCount report and have been described in detail in the project's Data Management Plan and in the earlier report on ethical considerations in Y-CSS (Ridley & Norvoll, 2022).

1.5 Structure of the Report

This report comprises six main chapters starting with an introduction and background to the YouCount project outlining key findings from the literature about CS and CSS and why there is a case for developing new knowledge to inform the field. The aims of YouCount are briefly explained followed by the aim for this report, which is to present information from the 10 case reports and other data (e.g., WP2 meeting minutes, evaluation self-reports) to consider hands-on Y-CSS in practice and the lessons that can be gleaned from implementation. Chapter Two looks at how the YouCount cases were planned and established a foundation to conduct hands-on Y-CSS including comparing and contrasting the different cases and examining how young people were part of the research teams undertaking social inclusion studies. Chapter Three specifically examines the strategies used for the recruitment and engagement of YCS including young people from wider community groups, and the motivations and incentives that cases used. The next chapter discusses methodology in Y-CSS and the data collection methods as well as analysis methods deployed in the 10 cases. Chapter Five importantly discusses co-creation in YouCount and gives examples of what this meant in practice. Some key learning points for the chapter topic are presented at the end. Chapter Six then summarises the key findings and themes and draws conclusions.

2. Planning and Establishing Y-CSS Cases

2.1 Introduction

A key purpose of the YouCount project encapsulated in the work of WP 2 was to plan and implement hands-on youth citizen social science (Y-CSS), putting into practice the interdisciplinary conceptual and methodological frameworks for conducting Y-CSS developed at the start of the project in WP 1 (Ridley et al., 2022; Butkevičienė et al., 2021). A multiple case study design saw 10 local cases of Y-CSS developed in nine countries across Europe, each aiming to conduct co-creative research with young people and stakeholders in living labs (LL) and utilising a variety of data collection methods for exploring social inclusion adapted to the individual case projects. Early on, all cases were tasked with establishing the foundation and means for co-creative collaboration and successful recruitment strategies at local and national levels. This meant establishing appropriate and relevant research teams, including recruiting young people as young citizen scientists (YCS), young students, and relevant stakeholders to the LLs and considering best ways of achieving the project's main aim to conduct 'co-creative' Y-CSS.

Considering YouCount was experimental and innovative, there was no clear blueprint for the cases to follow for establishing relevant research teams except general guidance offered by the Conceptual and Methodological Frameworks developed under WP 1. Determining the appropriate infrastructure needed for co-creative Y-CSS at the local level, identifying and allocating the necessary people and other resources to implement the project, and securing good project management, therefore, had to be worked out by each individual case. This was an evolving and dynamic process for the local cases. Citizen science (CS) represents a diverse disciplinary field in science reflecting different epistemological and ontological positions. As noted, it is also characterised by material practices and infrastructures including locations, access to resources, research materials or choice of methodologies (Morgan, 2021). In this chapter we use the data to paint a broad-brush picture of how the 10 YouCount research teams were founded, their composition, and by outlining the 10 cases provide a sense of the diversity across them, and finally, reflect on some key learning points from practice.

2.2 Establishing Research Teams for Y-CSS

Recently, CS has been promoted by the EU as a promising scientific approach for democratising science. Additionally, it is seen as supporting inclusion and citizen participation in the generation of knowledge, policymaking, and social innovations. Despite this, several empirical studies have shown citizen involvement to be more limited than these ambitions suggest, and an uneven

distribution of CS practices within Europe with the domination of Western European countries and comparatively small number of CS projects in Central and Eastern Europe (Butkevičienė et al, 2021). As well as seeking to recruit and engage young people from a wide range of backgrounds (see Chapter 3), the YouCount project took place in nine countries including Lithuania and Hungary and, therefore, incorporates broader experiences and perspectives than other CS studies to date.

The 10 cases in the YouCount multiple case study began from different starting points. Half of the cases set up research teams from nothing and faced the job of interpreting what was needed and building a relevant multidisciplinary team to undertake WP2 tasks and implement hands-on Y-CSS (UK, Spain, Austria, Lithuania, Denmark). Others, however, started the case with already established relationships between some or all of the researchers and also in some cases, with young people who they had worked with in previous projects (Hungary A, Hungary B, Norway, Sweden, Italy). In contrast to new teams and projects, the lead senior researcher in Hungary B explains how YouCount offered an opportunity for further community development work already started some years ago, through adopting the novel approach of Y-CSS with a rural village community with whom the academic researchers had already established strong relationships:

> *"I step in as a researcher in 2016, and the commitment shared by all the three of us to develop community program elements "organically" (i.e., always building on earlier achievements in terms of community development) strongly shaped my position as a researcher; the activities we could engage in collaboratively with local youngsters."*
> (Hungary B case)

Most cases started with just one or two senior academics who were involved from the research bid writing stage and when successful, built on this by attracting relevant professional researchers from different backgrounds, as well as young people and students into the research teams. Most of these senior researchers remained throughout the project. Without comprehensive information we can only summarise the disciplines involved across the research teams, which included social scientists, creative practitioners, community psychologists, economists, communication scientists, ethnographers, engagement professionals, educationalists. The teams also included academics with a range of research expertise in qualitative and quantitative research, CS, youth participatory action research, economic analysis, and evaluation methods. The different professional perspectives in the teams together with cultural differences led to interesting and rich discussions in WP 2 meetings that we held online on a regular monthly basis and add to the rich tapestry that is YouCount.

2.2.1 Composition of research teams

There was a great deal of flexibility afforded the cases in determining the size and composition of the case research team. This was partly driven by the nature of the project tasks as well as the researchers' understanding of the need for different multidisciplinary inputs at different stages in the project. The demands created by the nature of individual social inclusion projects also to some extent, influenced the number and expertise of the researchers and research managers needed. Often teams started with one to three key professional researchers who had been involved in the research bid writing. Invariably there were two to three core members from each team who remained consistent throughout the project and undertook project management roles. However, there were also major changes in personnel for some of the teams, which meant a high overall number of researchers in teams over the lifetime of the project. The UK case team for instance, comprised an overall total of eight academic researchers, one non-academic (creative professional) alongside four students over the three years of the project. As in other cases this demonstrates the need to expand the skillset as the project demands grew, the need to recruit more YCSs and budgetary constraints. As Table 1 below shows the number of academics in case teams varied considerably from three in the Italian case, to more than 10 in other cases. In all cases, the numbers of undergraduate and postgraduate students involved were small (1 to 5), while there was more variation in the number of YCSs – for example, in Hungary B there were 10 YCS while the Lithuanian case had 26 YCS involved over the course of the project. The larger number of YCS reflects the fluidity of young people's involvement as YCSs in the research teams.

Table 3: Number of professional researchers, non-academic researchers, students and YCS in research teams over the project lifetime

Case Name	Number of paid/ professional researchers or academics	Number of students (Undergrads & Postgrads)	Number of non-academic researchers	Total number of team members excluding YCS	Total number of YCS in teams (R-YCS)
Denmark	2	5 (co-ordinator)		7	20
UK	8	4 (3 paid)	1(photographer)	13	21
Hungary A	3	5	2	10	11
Italy	2	4 (also YCS)	0	2	9
Hungary B	2	3	1	6	10
Norway	5	4 (1 paid)		8	12
Sweden	2	0	3	5	20
Spain	5	1 (paid)		6	18
Lithuania	7	2		9	26

Researchers' understanding of how Y-CSS should be implemented, which in many cases was evolving as the project unfolded, and the aims of the study determined the shape, size and nature of the multi-disciplinary research teams established. Where the case started from a strong hypothesis, for instance about community cohesion and models that help to foster belonging as the Italian case did, the team had few academic researchers from the same discipline. Others recruited additional academic researchers and students to the team as the project progressed and the need for additional skills and expertise became apparent. Also, this was because there was movement and change in the teams caused by both researchers and students leaving for other jobs and situations (e.g., Lithuania, Hungary B, Sweden, UK). Other case teams remained more

stable throughout with some but less attrition from the teams (e.g., Spain, Norway). This situation of flux coupled with varying amounts of time team members had allocated to work on YouCount, affected continuity in the teams. To an extent this slowed the pace of work at times, especially when new team members recruited to deliver aspects of the project needed time to understand the YouCount project.

> *"The members of the research group have different availability in terms of time and capacity to work on the project. It makes some processes uneven, some members take part more closely and have more influencing power than others"* (Hungary A case)

The lack of diversity within the research teams in terms of gender, ethnicity and background was commented upon by some researchers, heightening their awareness of the power imbalances with young co-researchers:

> *"We are a diverse group of researchers, when it comes to gender, age, national and disciplinary background but we are all middleclass white Western Europeans and this has made us particularly aware of the power imbalances between us and the youth, but also on the potential for genuine, new data and research questions that we wouldn't have produced ourselves." (*Norwegian case)

The composition of other researcher teams appeared more diverse. In the UK team for example, young researchers (Research Associate, Research Assistant), and young postgraduate students from Black, Asian and Minority Ethnic (BAME) backgrounds worked alongside professional researchers, some of whom also had experience of disability. Both Hungarian research cases sought to include other non-academic researchers in their teams, either people from the rural village community that were "embedded in local kinship ties and maintained a 'parent-like' relationship with the participants", or non-academic researchers with experience of living with a hearing impairment.

2.2.2 Student YCS

University student engagement both as voluntary and paid researchers was crucial for many of the projects, yet limited information was provided regarding their recruitment and roles in the case reports. All cases mentioned recruiting and working with between one and five students including undergraduate and postgraduate students (Masters and PhD) from various disciplines. Student researchers were involved in some cases throughout the project and supported various project tasks, such as "helping find stakeholders, facilitating cases, reviewing the literature, and investigating different engagement methods" (Denmark). A student researcher was involved throughout the Austrian case and supported work with young people, as well as undertook technical research tasks such as transcribing and analysing data. Although there were benefits to

having student researchers on the team, most were for a limited time only, leaving the project when their studies were completed. Nevertheless, cases such as the Danish case, where a PhD student was responsible for case implementation, the role of students was more complex.

In other cases, young students contributed to the project while simultaneously doing fieldwork in the project context (Hungary B). Some students were hired as paid researchers after completing their studies and continued to contribute to YouCount (Norway, UK, Denmark). The value of the students as researchers and part of the team was acknowledged. However, only limited information was shared in the case reports regarding their participation and contribution. Yet, as Hungary A case highlighted, student co-researchers were considered "highly educated and academically socialised". Similarly, Italy, Sweden, Norway, Austria and the UK teams had student researchers at various stages as part of their research teams. These student researchers undertook various roles in the project; some were unpaid volunteer researchers with a keen interest in CS and CSS, while others were either employed part and full time and took lead roles in supporting and recruiting young people, implementing research activities, training, data collection, analysis and writing reports.

2.2.2 Integration of YCS into teams

All cases started with the explicit aim of working closely with young people in the research teams. The extent to which young people recruited as young citizen scientists (YCS) were integrated within case research teams varied. The Hungary A case team, for example, described itself as comprising three professional researchers, students and young people who were hard of hearing (HH young people) who were also University students. Similarly, the Italian case team was reported as comprised of two professional researchers, one a senior Professor, and several YCS:

> *"The Italian research team is comprised of two professional researchers …and seven YCSs (4 female, 3 male) – who were identified among young citizens active in the area of interest for the case development, university students, and youths having a migratory background…"*

In other cases, especially those with larger numbers of academic researchers in the team, strategies were used to link the academics in the team with the YCSs. Specific researchers or young students in the team were often allocated the role of communicating with the YCSs on behalf of the team and acted as a bridge between the academics and YCSs because of their closeness in age, language and sometimes life situations with YCSs. Team members were involved variously with the YCS, for example, even if not in regular contact with the YCS, they participated in the training days, dialogue forums, data collection events and the living labs and so were known to each other. Some had several young student YCSs in the team. In Denmark for instance, a

young PhD student managed the day-to-day implementation of the Y-CSS, alongside Masters students who came into the project at various stages for fixed periods of time:

> *"The PhD. student entered the project in the summer of 21. She has been responsible for the case implementation and facilitation work, where the professional researcher is a part of the management and supervision."* (Danish case)

In some cases (e.g., UK, Norway), postgraduate students recruited into local project research teams and working voluntarily, later took up paid researcher roles. In the UK, a "vibrant group of young students from UCLan were recruited to the research team over time". This included an undergraduate student in Arts and Media, a PhD student from Social Work who was a volunteer YCS at the start and later was employed as a Research Assistant, other PhD students from other disciplines in both voluntary and paid capacity. Additionally, a PhD student from another UK University was employed in the research team for a fixed term. Young students were part of the research team in the Norwegian team throughout the project period. One student was from the International Migration and Ethnic Relations, the Department of Global Political Studies, at Malmö University. Two students were from the MA program of International Social Welfare and Health Policy, at the Faculty of Social Sciences at Oslo Metropolitan University. One of the MA students was hired as a research assistant after thesis submission and employed as project advisor in the Oslo case team for one year. Another student who became part of the research team was an undergraduate student from the Department of Social Anthropology at University of Oslo.

2.4 Overview of YouCount Cases

To fully appreciate the range and diversity, as well the commonalities between the cases of Y-CSS in YouCount each case is summarised below.

Case 1: Norway, Oslo Met - Empowering local youth in their quest for social inclusion through employment and social entrepreneurship in Oslo: social participation in Norway

The social inclusion and innovation focus was on social participation through employability and social entrepreneurship. The youth group, all from minority ethnic backgrounds and most were born in Norway with parents from other nationalities, was recruited from Gamle Oslo district in Oslo. This is a mixed inner-city area with an affluent financial district, ongoing harbour development and socio-economic challenges of unemployment, child poverty, and immigration issues. The aim of the case was both to create opportunities for local youth to experience and learn how citizen social science can be done in their neighbourhood setting, and to gain co-researched knowledge on local job opportunities for youth through established companies or organisations in the area or through local entrepreneurial initiatives. Our main approach was transdisciplinary co-creation with young citizen scientists and local stakeholders, using a range of

visual, sensory, tactile, and explorative methods for doing empirical research in the local neighbourhood. We also tested and evaluated these and contributed with innovative dissemination of findings through the creative use of physical exhibition spaces.

Case 2: Spain – Orkestra - Inclusion factors for young unaccompanied migrants in the Basque Country: Spain, Social participation (and beyond)

The case takes place in Gipuzkoa, a province in Basque Country where foreign unaccompanied minors and young adult migrants (mainly from Morocco) has reached a significant number. While an efficient care protection system has been developed for minors, when they turn 18 and leave child protection services, both the young adults and the system struggle to address their new reality. Despite minors being covered by the protection system of the territory, once they reach adulthood, they find themselves outside of it, most of them becoming unaccompanied once they acquire the category of 'young person'. Their situation makes them particularly vulnerable and in need of specific policies to facilitate social inclusion. In this sense, the main aim of the case was to identify factors that contribute to the social inclusion of unaccompanied migrants using citizen science in order to design public policies that may be useful to them. The case sought to understand the views and experiences of young migrants with marginalisation, social inclusion, participation in the society and their chances and difficulties to find a job.

Case3: Hungary (Case A), SSRG - Hard of hearing youth, Szeged: Social participation

Young people who are hard of hearing (HH) are a marginalized social group facing many challenges in terms of equality of education and employment opportunities among others in Hungary. Emancipatory and participatory approaches and a more detailed picture on HH youth well-being is needed to increase social inclusion. Our case used a citizen social science approach with HH youths specifically focusing on social participation in Szeged, Hungary. This project was a continuation of a previous university project aiming to explore the health equality issues of HH families in Szeged in 2018-2019 (Bajmócy et al. 2022, Gébert et al. 2022). The case study aimed to

1. Investigate and articulate how hard of hearing youths evaluate their own subjective well-being and social inclusion, what challenges they perceive (e.g. employment, housing) and what resources are available for them
2. Reflect on social inclusion and inclusiveness in the ongoing research process: as senior academics, to explore and thematize our own experience on working towards an inclusive research.

The overarching goal of the research was and is to make the voice of HH youth heard, to provide space and platforms for them to express themselves, their needs and lived experiences and to disseminate these articulate messages to the hearing part of the society.

Case 4: Hungary (Case B), Parforum/ Association for Siklósbodony - Reappropriating social innovation with rural young people: Social participation/ sense of belonging

During the last three decades Siklósbodony, a small village of 120 mixed Roma and non-Roma inhabitants in Southern Hungary, has lost almost all its public institutions (the kindergarten, the local store, post office). Job opportunities are scarce, access to quality education is very limited. In 2016 an arts-based community development process was launched in the village to overcome local community conflicts and create a shared vision for collective future. This arts-based participatory action research project was co-led and co-created with local young people and aimed at mobilizing all local citizens for a more active participation in community life. (Oblath 2023). The YouCount case built on this involving young people 14 to 29 living in the village continuing to explore the overarching research question of how to enhance community belonging. They aimed to investigate the connections between local social ties within the village and more opportunity-oriented weak social ties that extend beyond the community. Additionally, they sought to understand the relationship between the local community and the "external" social and imagined communities which young villagers belong to.

Case 5: Italy – UNINA - Making cultures meet and match to build community: Valuing social places and gatherings to foster social exchanges and relationships

The Italian case refers to social inclusion conceptualised as social or community belonging and connectedness. In this vein, it refers to participation in local shared activities, social capital enhancement, local connectedness to other community members, having opportunities to be heard and understood by other community members, and embeddedness in the community and sense of belonging as dimensions to be fostered for the implementation of social inclusion processes. Our target population was migrant and local youths, and we developed our activities in a historic, central neighbourhood of Naples – that is, Forcella. The aim of the case was to foster social cohesion by providing local and immigrant citizens with further opportunities for socialisation, discussion, and exchanges of beliefs and viewpoints. In Naples, foreign residents are mainly located in certain areas of the city, with processes of ghettoisation and self-ghettoisation. The goal of this case was to raise awareness about inclusive processes young migrants had to face among Italian and foreign youths, and to actively involve the youths from the identified local community in sustaining such processes. It envisaged the activation of processes aimed at the social inclusion of young migrant citizens through moments and opportunities of social encounter, exchange of viewpoints and perspectives, identification of shared visions and values, to promote a different and more inclusive way of living together within the community of belonging and the co-construction of a network between the stakeholders active on the territory and young citizens.

Case 6: UK – University of Central Lancashire – Young people's connectedness and sense of belonging in Preston

The UK case has explored 'social inclusion' by focusing on young peoples' experiences of, and views of community belonging and connectedness in Preston. As a post-industrial city in the North-West of England, UK, Preston faces several socio-economic challenges and has a population that is both ethnically and faith diverse. The city of Preston boasts high levels of community engagement in the framework of the pioneering 'Preston Model' of new socio-economic development and a proactive approach to community wealth building based on increasing community connections (Manley & Whyman, 2021)). Our case explored the shaping of young peoples' identities (including gender identity), and their sense of belonging and connectedness in this context. Young people aged 14-21 years explored community belonging and the following key areas were identified as important from young people's perspectives:

- Social connectedness and relationships within communities
- Feeling safe/unsafe in communities and the city
- Spaces and places young people feel are welcoming and accessible or exclude them
- Opportunities for belonging and feeling a part of local communities and the city
- Opportunities for work, education and training

The case study sought to identify what helps, as well as what gets in the way of young people feeling they belong and are connected to Preston; and what factors (or drivers) promote a more supportive climate for youth-driven solutions.

Case 7: Lithuania, KTU - Co-creating a Sense of Belonging and Connectedness in a Rural Region: Sense of belonging and connectedness

As a post-soviet society, Lithuania faces low participation in community activities, which accounts for low participation of youth in economic, political and social activities. The case study involved youth from Panevezys district municipality, located in the middle-north of the country. The region in focus is known for low employment opportunities, which accounts for youth emigration (inside the country and abroad). To address these challenges, this case study focused on youth social inclusion through engagement in citizen science in particular focussing on social belonging and connectedness. The case investigated how the youth perceive their place in a community and local setting and what factors might enhance the sense of belonging and connectedness to their local environment. The main research question addressed was: How do citizen science activities contribute to constructing a sense of social belonging and connectedness of young people? The case study aimed at strengthening young people's social and civic engagement and involvement in local community activities through a stronger sense of belonging (identified with recognition,

caring, inclusion and participation) to their community. We also explored at what level and how social inclusion practices exist in Panevėžys district, and what are social innovations.

Case 8: Sweden - Social inclusion through civic engagement in a municipality youth council: citizenship and rights

The Swedish case study originated from the idea to explore how to increase political engagement among youth in the municipality of Botkyrka. This socio-economically differentiated municipality is classified as having several disadvantaged areas, where social inclusion can be considered as low. Botkyrka was one of the first municipalities in Sweden to start a Youth Council, to engage young people in the democratic governance processes. With 20 years of experience and successful implementation, the Youth Council leaders and the active young members still considered that outreach could be improved. YouCount was an opportunity to explore new channels for young people to express their concerns about problems encountered and provide ideas on change. The function of the Youth Council is to discuss and assess such ideas, and to forward them to the political governance board of Botkyrka for possible action. The youth council also organize activities to inform and engage their peers. The research sought to address the following questions: (1) In what ways does engagement in the Botkyrka Youth Council (BYC) function as a driver for other dimensions of social inclusion (work, education, social life)? (2) What are the main drivers for enabling more young people to engage in the youth council? (3) Could the YouCount app be used for civic dialogue with the young Botkyrka community to learn about –and tackle – local challenges? Engagement in BYC is regarded by present and former delegates as an important factor for several dimensions of social inclusion; however, they also perceive obstacles and misconceptions in the community preventing young people from becoming civically engaged.

Case 9: Austria – University of Vienna: Fostering social inclusion: Existing and needed participation opportunities for young migrants and refugees in Austria: Citizenship and rights

Within recent years, many young refugees and migrants came to Austria to build a safe and successful life—and to become part of the Austrian society. When young refugees and migrants arrive, however, they do not automatically have the same rights as Austrian citizens. Without a legal basis like voting rights young refugees and migrants need different opportunities for engaging in society. We therefore examined the following key research questions:

- Which civic engagement opportunities do young refugees and migrants have?
- Which opportunities are missing for young refugees and migrants to meaningfully participate?

The case was located mainly in Vienna, but through online workshops was able to also include young refugees from other Austrian cities (e.g., Graz). The target group was young refugees, with or without official citizenship, who knew enough German to actively participate in workshops held in German. Social inclusion was explored by focusing on the political and social participation possibilities, as well as civic engagement opportunities for young refugees in Austria. We aimed to explore to what extent they feel addressed, included, given opportunities and spaces. Those possibilities can vary from demonstrations, over world cafés, to refugee sports groups – the common aspect always being a sense of citizenship, social belonging, and ultimately: social inclusion. There were some established structures for that already, mostly being organized by specific NGOs. However, we also examined the potential obstacles to existing participation possibilities: which hurdles might prevent (young) refugees from taking part. This could only and exclusively be answered by refugees themselves since their unique experiences and life realities come with unique struggles. Since Austria does indeed have many refugees (compared to other EU-countries), this is a topic with high national relevance.

Case 10: Denmark – Aalborg University: Co-designing inclusive and youth friendly societies though civic engagement in local Circular economy activities: Citizenship & rights

The social inclusion and innovation focus was citizenship and investigated how to create local civic engagement with youths and how engaging them in sustainable development processes can create awareness of one's local environment and co-design sustainable activities for themselves and others. The Danish case study was conducted in the urban area of South Harbour, Copenhagen, an old industrial area with a diverse population. This has become divided into four main districts through the years, with the case study mainly conducted in the old part but including stakeholders from all four districts. Today the old part of South Harbour is recognized as one of Copenhagen's vulnerable urban areas. Since 2006 the population in South Harbour has increased exponentially with an influx of wealthier families into some of the districts, which has created large cultural divisions and prejudices between districts, and distinct district identities. Although the original research focus was on engaging youth in developing a circular economy network in South Harbour, this shifted to using a broader sustainable development perspective. The hypothesis was that the opportunity to investigate the local environment and articulate oppressing conditions can inspire the design of sustainable activities and create civic youth engagement and social inclusion in South Harbour. The overall research question for the Danish case was therefore to investigate: How can we engage youth (15-25 years) in co-designing sustainable activities in their local environment, and can these processes create civic youth engagement and social inclusion in South Harbour Copenhagen?

2.5 Planning and Establishing Y-CSS: Key Points

From the individual case reports and other data such as the notes of consortium reflections at WP 2 meetings, several lessons can be gleaned about planning and establishing Y-CSS from the way YouCount implemented hands-on CSS:

- We found that a Y-CSS team requires several different skills and experience: including project management, youth worker, social scientists, activist. It is important to plan for a large enough team with these skills and expertise.
- Starting from scratch with a new team required setting time aside to learn how to work together, deciding the project focus and the youth group to work with/target, and how to recruit young people as YCS as early as possible so they are part of the research team.
- How best to recruit and engage young people and work with disadvantaged youth were important discussions within teams. Time for these discussions needs to be planned at the start.
- As found in YouCount, a larger research team increases capacity, spreads the risk, and creates opportunities for multi-disciplinary inputs but there are practical implications for project management.
- It was important to plan from the beginning who is facilitating what and assign roles such as engaging and communicating with young people or contacting stakeholders and organising the Living Labs to specific team members.
- Time needed to be spent on team building and developing positive working relationships within research teams, which was especially important when creating a new team and this takes time.
- The complexity of Y-CSS means that the tasks to be undertaken are challenging and team members need to be able to manage many tasks at once and to juggle multiple demands.
- Time, staffing resource, workload management, and budget needed to be managed flexibly, ensuring for instance that there was sufficient capacity in the team to share the complex workload.
- It was important to play to different people's strengths in working with young people and stakeholders, for instance, as well teams having organisational and time management skills.
- Recruiting young student researchers in various roles who were similar in age with YCSs, brought an important youth perspective to the team and acted as a bridge between young people and the scientific/academic community.

3. Recruiting, Engaging and Supporting Young People in Y-CSS

3.1. Introduction

The recruitment and engagement of young people as young citizen scientists (YCS), of students and young people from the broader youth population in communities or specific groups of young people targeted by the case, was crucial in the YouCount project. Many CS projects involve children and young people, especially in school settings and some in community-based settings (Robinson et al., 2021). However, fewer CS projects involve teenagers and young adults 13 to 29 years or have broad social and political goals as opposed to mainly educational aims. Additionally, given the growing policy focus on youth participation as well as democratic engagement in science, YouCount sought to actively involve young people experiencing disadvantage and exclusion, those rarely involved in science whose voices are seldom heard. At the outset, we recognised this may require new strategies to overcome the barriers to recruitment and the adoption of more co-creative approaches to enhance the experience of YCSs (see also Chapter 5). It might also mean adopting creative recruitment strategies, such as advertising the opportunity to become a YCS in novel spaces such as community hubs, places where young people go, and through a variety of youth organisations.

This chapter discusses the promising methods and strategies used to recruit young people as YCSs in YouCount and identifies the key mechanisms of meaningful and creative engagement of young people deployed in the local cases. Although there are differences regarding the case topics addressed, as well as the scope of each case and the groups of young people involved, the analysis of experiences across-cases shows common as well as diverse points and experiences regarding the recruitment and engagement of young citizen scientists (YCS), and thus offers a more nuanced exploration of CSS practice. Some key learning points across the cases are highlighted.

3.2. Experiences with Recruitment of YCS

In almost all the local YouCount cases, the close collaboration with schools and other key stakeholders or organisations working with young people was key to facilitating successful recruitment (Denmark, Austria, Hungary A, Italy, Lithuania, Norway, Spain, Sweden). Involving such stakeholders was crucial for recruiting young people into the YouCount projects and for connecting the academic research teams with broader groups of young people. For instance, the Austrian, Spanish and Swedish cases all reported the central involvement of NGOs being

responsible for recruitment, advertising the YCS opportunity through their networks and leading selection processes to identify those interested young people:

> *"Recruitment has been a continuous and quite unproblematic process in Sweden's case. Before every meeting, the Democracy Coordinator has invited a few new R-YCS to the meetings, workshops and data collection exercises and worked actively to retain the ones who are already involved."* (Swedish case)

Since young people who were migrant, asylum seekers, or refugees were amongst those considered seldom heard in CS, it is pertinent and ethical that contact with young people in some cases was instigated via NGOs who were most familiar with young people from these groups, and assured their best interests were at the heart of recruitment. Even so, as the Austrian case acknowledged, there were some limitations of adopting such a strategy such as having "biases regarding the type of hard-to-reach and disadvantaged young people were in touch with NGOs and also interested in the project" as opposed to reaching out to those not known to organisations. In the Spanish case, although unable initially to recruit young migrants and refugees directly, they had several meetings and visits to NGOs during which they met some young people who later became YCSs in the case. An NGO working with young people also supported the Norwegian case with its' recruitment by distributing flyers and promoting YouCount to youth.

Other cases discuss seeking gatekeepers' approval for reaching young people, especially educational establishments (schools, colleges and universities). The research teams often liaised with key stakeholders such as teachers in these organisations who helped promote YouCount. Research teams often presented to and talked with school children and college students and organised creative activities in classrooms at schools, colleges and Universities (Lithuania, Italy, UK, Hungary A). Additionally, the Lithuanian case mentioned engaging former students to help with recruitment and using school hours for workshops with students meant they were not required to attend sessions outside of these times. Similarly, Hungary A went through a university to recruit students who were hard of hearing (HH young people) to the case: although it was still not easy to recruit and proved to be a "long process with many letters sent" until recruitment was successful. Mapping which local organisations worked with young people as a precursor to approaching these stakeholders, was a common activity amongst the cases in the early stages of recruitment. This helped identify key youth and community leaders who should be approached to advise on recruiting YCSs. 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."* (Lithuanian case)

Greater recruitment success was noted in those cases where an existing group of young people formed the initial YCSs (Hungary B, Norway), whereby recruitment to YouCount represented continuation of involvement from previous research or other projects. As shown in Chapter 2, half of the cases involved setting up new research teams, including the task of recruiting a new group of young people to become R-YCSs relying heavily on the networks the research teams brought with them. In addition, in some cases, where young people were known, they did not have previous research experience (Italy). In three cases (Denmark, Spain, Norway) some young people known to the researchers were hired or renumerated on occasion by the project and supported recruitment of more YCSs. Others used creative methods during their community recruitment drives, such as the Italian team's" spontaneous recruitment" via activities in the historical city center; and creative games and activities put on by the Danish researchers during music festivals, or the UK team's community engagement methods. Moreover, as part of the recruitment activities, some of the cases reported attempts to understand young people's motivations and answer any queries about the project:

> *"Each of them was contacted individually and had an individual interview with the Italian research team, which was aimed at explaining the aims, activities, and requirements of YouCount project and at understanding youths' interest, attitude, and motivation to get involved in it. We believe that previous knowledge or work collaborations with the recruited youths allowed them to…decide whether to enter it as R-YCSs with a clear idea of their future role in mind."* (Italian case)

More generalised recruitment initiatives, for example, seeking to recruit young people from certain areas or populations, included teams creating posters, press releases and flyers to promote the opportunity to become a YCS in the research team via social media. Although this strategy was believed useful in reaching out to those in the wider community not normally involved in such projects, the cases reported limited impact: for example, in the Danish case, only one young person was known to have been recruited as R-YCS this way. Some groups of young people were easier to target than others due to having specific characteristics or homogeneity, for instance HH youth (Hungary A), young people from specific rural communities (Lithuania, Hungary B) or young migrants, asylum seekers and refugees (Austria, Italy, Spain, Norway).

Across the cases, it was common to report attrition of YCS from the research teams, which was considered "natural" given young people's other life commitments and that young people with varying motivations and interest in the topics of social inclusion were recruited. Thus, several stages of recruitment were invariably required in most cases: in other words, recruitment of YCS was not a one-off event. In addition, YCSs were asked to "invite their friends", thus peer or snowball recruitment methods were used to varying degrees of success. In some of YouCount's activities, this worked well (e.g., Living Labs, national workshops, other events), and for some cases it worked to recruit new YCSs to the team, yet it was not a reliable method overall. Recruitment, therefore, became an organic process whereby initial plans changed and developed

according to new learning. Flexibility and space for innovation and creativity in recruiting YCSs was crucial and fulfilled multiple purposes as the following suggests:

> *"The recruitment process has a dual purpose - to recruit R-YCS, raise awareness of YouCount, and include a wider cohort of young people from across several groups to which the R-YCS are connected."* (UK case)

Recruiting young people from wider communities or target groups to participate in YouCount often occurred at the same time as efforts to recruit young people as YCS in the research teams, and in most cases this was an ongoing process. Although it was envisaged there would be a stepped approach to recruitment and data collection, in many local cases engagement with wider groups of young people was a key part of general recruitment strategies. Thus, recruitment of YCSs to research teams and engaging wider groups of young people were more interconnected than originally expected. Offering creative activities during school times as part of the curriculum or extracurricular activities facilitated wider youth engagement, the collection of young people's views about social inclusion and increased visibility of YouCount. However, going into such groups did not always result in recruiting young people as YCSs: the Lithuanian case mentioned a dialogical forum hosted with over 50 young people, yet only one returned to become a R-YCS in YouCount.

Another strategy common across cases was inviting young people recruited as YCSs to reach out to their peers to join the research teams, and to participate in the Living Labs for instance. This type of peer engagement and recruitment worked to a limited extent. Also, though not common, employing young people as coordinators facilitated wider youth recruitment and engagement generally (Denmark, Norway, Spain). Visibility for YouCount project cases was raised through social media, although few young people were recruited to YouCount in this way. Yet, visibility through organising direct activities from the start proved positive for the Italian case: the 'reaching-out exercises' conducted in the historical city centre facilitated engagement with a wider population of young people as well as recruited for the case. Further, in the Danish case, live music or youth events managed to reach large groups of young people; and in the Spanish case young people were involved in news reporting to raise the profile of YouCount.

3.3. Training and Support

In the project, the local cases decided what 'training' meant and how it had to develop in the case. OsloMet led the development of a training package, which included ideas for setting up the training, scheduling days, and ideas for materials for data collection, among others. They developed the 'training house' model (see Figure 3 below). This represented the conceptual framework for the training of YCS that could be used and adapted by all the cases in YouCount,

which was presented at one of the monthly WP2 meetings and all cases participated in considering how they might use the 'training house' in their case. In this process, the research teams ensured considerations regarding the emphasis on a bottom-up approach, engaging young people as experts and differentiating between the responsibilities and engagement of young people versus the researchers.

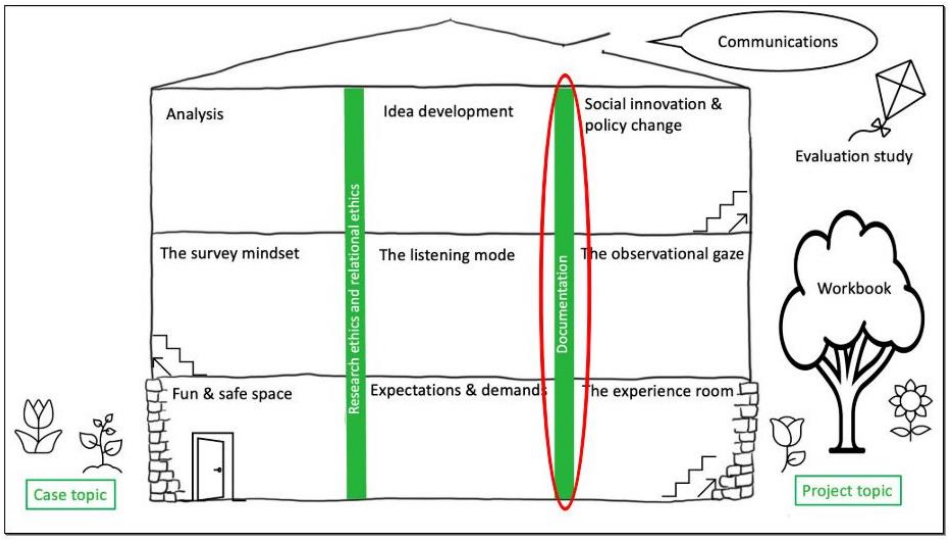

Figure 3. 'The training house' model (Norway)

In practice, inspired by the model, each case created their own training offer for young people. There was less structured training than expected across the cases and compared to traditional CS projects. This in part may be attributed to the YCS generally playing a more fluid role in the project than in other research projects where (paid) co-researchers have more specified roles in data collection and dissemination. Although all cases provided some form of what they referred to as 'training', the terminology used to describe this was inconsistent. A mixture of terms was used such as 'training', 'workshops', "encounters of learning", 'seminars' or simply 'meetings' or 'discussions'. Unpacking what training had happened in practice, therefore, was challenging. To complicate this further, in some cases it felt more natural to the teams to offer training as the case developed, particularly as new data collection methods were introduced. The main purpose of training in several cases was primarily for YCSs to learn about research methods and how to apply them:

> *"One member was appointed as a trainee for the research and got financial funding for summarising the data collected by Spotteron and categorising the resources."* (Hungary A case)

Cases varied in what they identified as the most appropriate locations for delivering training-related activities. These included schools, youth centres, universities, museums, community hubs and other locations. Such places were chosen because it was believed they would be easily accessible for young people and were youth friendly, ensuring "a fun and safe space". In the training, the cases used different methods, exercises, games and icebreakers to get to know each other and learn about the project and various research methods. Across the cases, delivering training activities facilitated group formation, learning, and building up initial stages of data collection, as well as data analysis. YCSs could learn and experiment with creating data collection tools and role play and utilise different data collection methods.

In a few cases, the training took place over specific days (typically two days), with additional sessions at other times focusing on other elements such as discussing literature review, conducting data collection, or analysing the data. Training took place both online and face-to-face, and it was agreed across cases that the in-person training events proved most effective with higher levels of engagement and participation. Academic researchers took on different roles and responsibilities during the training, and in many cases, most team members were involved directly or indirectly in delivering sessions. Other cases mentioned types of training such as "basic training for volunteers/citizen scientists to use the YC App" (Lithuania), and sessions on specific topics or methods, such as photography (Italy, UK) or filming (Hungary B).

Different training strategies and arrangements were required according to the research context, the group of young people involved (e.g., age, background of young people, and other particularities). One example of detailed programme of ongoing training was provided by the Danish case:

> *"Specifically, the R-YCSs were trained to (a) map a territory concerning the stakeholders, associations, groups, and other relevant actors engaged as to a specific topic – in this case, social inclusion processes involving local and migrant youths; (b) search, read, and summarise the main aspects of research papers addressing a given topic; (c) create a grid for interviews; (d) conduct interviews; (e) serve as facilitators during World Café and co-design sessions; (f) write logbooks about the research process and activities. Within the framework of these meetings, R-YCSs were also informed about the conceptual, methodological, co-creation, evaluation, and ethical aspects of youth-centred Citizen Social Science."* (Danish case)

The cases held workshops or discussions with the YCSs where they discussed social inclusion and other technical elements relevant to the case project (Norway, UK, Hungary A, Hungary B). In at least one case, social inclusion and general research topics were discussed before any research training was delivered (Italy). Some focused more on using the training to establish and strengthen the group and introduce the YouCount project and process (Spain). Key approaches that assisted the success of the training were the flexibility to adapt to young people's needs while

still providing technical inputs. Food also represented yet another connector and motivator for young people to be involved in the training and was used across all cases:

> *"We started both days 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. Youths often describe food as important when giving feedback on participatory work."* (Norwegian case)

Apart from training, the ongoing support received by YCSs was identified as ensuring youth friendly environments, as the research teams being flexible and ensuring young people's needs were met. The UK case created a one-to-one mentoring scheme to support YCSs with personal development and career guidance, fostering better team cohesion. This involved matching YCSs with academic and student researchers in the team who offered informal support.

3.4. Good Communication

Communications that are helpful, appropriate, and acceptable to the people involved was important in the YouCount research cases, especially for meaningful engagement of young people with academic researchers. Some research teams, for example, Hungary A needed to learn ways to communicate with young people who were hard of hearing. Although cases had to adapt and find appropriate approaches and channels for communication, most cases mentioned communication as a specific aspect of engagement and support that received much attention. Communicating with young people was discussed under two key dimensions. First, the approach or language used and second, the methods or channels of communication used. 'How we communicate' was an issue that was highlighted by all cases, noting that getting the terminology and language used right were vital. Thus, a shared key point represented keeping communication simple and is exemplified by this comment:

> *"Sometimes it can be challenging to reach the youth outside the institutions. The use of scientific words can be triggering as well" (*Danish case)

This point resonated across the cases, as scientific communication could be "dry" if researchers use too much jargon or scientific words and concepts. In other cases, there were issues with the spoken and written language in the case not being the young people's first language, thus at times, this limited understanding, expression, and reciprocity (Austria, Norway, Spain, Italy). Issues were also noticed when communication was "too formal" (Spain). Thus, a balance needed to be struck between youth-friendly approaches and delivering the professional/educational content:

> *Getting the balance right between communicating serious and dry topics and providing entertaining and engaging content is a constant challenge to be actively worked on!* (UK case)

Methods or channels of communication used in the cases varied from communication with individuals by telephone, on Teams, Facebook, WhatsApp, and by emails. Most cases used a mix of approaches or described their approach as "hybrid". Among all these methods employed, consistency or 'continuous communication' was vital in maintaining relationships with young people and reminding them about activities and the ongoing research process (Norway, UK). Others noticed that having "open communication" (Italy) allowed YCS to express themselves freely and comfortably. However, among the challenges of communication mentioned, most cases commented on the amount of time and effort invested in regular communications with the YCSs. This represented a significant part of the engagement process in YouCount, and some noted that time for example, holding regular meetings with YCSs, organizing, and promoting events, chasing, and receiving answers from young people regarding availability and so on had not been fully anticipated in project timelines. Additional limitations to communication were linked to the COVID-19 pandemic: this affected whether communications and sessions were held in person or online and the lack of in-person contact, and participation had reduced engagement in some cases, or was not always appropriate or accurate, for instance, for HH young people (Hungary A). In contrast, online meetings proved cost and time-effective for some, especially for catchups and solving small tasks (Lithuania, Austria).

3.5 Motivation and Incentives

While all cases recognised the importance of motivation, they often struggled to put into words what motivated young people to engage with Y-CSS. Some identified financial, material, and social incentives (food sharing, social events, trips), educational (knowledge and skills acquired due to participation, improving the CV), networking and opportunities. Thus, from the outset, it was clear that YCS must know from the recruitment stage about the possible incentives or other rewards connected to their participation, as it was considered an ethical consideration and relevant across cases. Yet, since their involvement as motivated citizens in CS needed to be voluntary, the cases generally had to find alternative ways to reward their participation. Across the cases, YCSs were encouraged to have a say in the system of rewards and incentives, being regularly consulted about the best way to reward their participation (Denmark, Lithuania, UK).

A common view and observation from engaging young people in YouCount across the cases is encapsulated in the following statement from the Austrian case: "It is sometimes hard to keep their motivation high since they do not get payment for their work and efforts". All cases experienced and discussed the challenge of recruiting YCS and keeping them engaged long-term

considering the lack of monetary incentives. This key observation, was relevant to all the cases and was discussed often and shared with the funders:

> *It was interesting that involving young people who are often not involved in CS is a key aim of the programme, but that systems do not allow young people to be paid as co-researchers.* (Meeting minutes WP2, 02.09.2022)

Despite restrictions, some cases managed to provide some form of monetary incentives to support longer term engagement. For instance, Denmark hired a young person who helped with recruitment and engagement, and Norway, in collaboration with a stakeholder, had two young people who took on "paid communication assignments". In Sweden, YCSs were commissioned to use the App for one week. Most researchers however, felt that YCSs could have benefited and been incentivised by monetary rewards:

> *"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 YCS felt valued as genuine 'equals' to the paid UCLan staff."* (UK case)

Finding ways to support young people's participation other than through financial rewards was reported by all cases and included having times when the teams socialised or had meals together, they had "fun times" together, which were said to be highly valued (Denmark, Norway, UK, Spain). Providing a mix of entertaining and engaging activities such as games and creative activities were deployed to maintain the interest and engagement of young people (Denmark, Norway, UK, Austria). Some cases included study trips and materials for activities such as mobile phones (Hungary B), and the possibility of attending in person YouCount consortium meetings in other countries. Personal development through mentoring and support schemes (UK) certificates for acknowledgement of skills development and training (Denmark, UK, Spain, Sweden) or extra university credits for volunteering were all mentioned as valuable motivational factors for young people (Lithuania).

For others, the intrinsic benefits observed such as YCSs having a sense of "pride, empowerment or feeling savvy" were central to motivation (Hungary A). In this case, the mutual support received from other YCSs sharing practical information about hearing aids, for example, was further motivation to continue. This sense of pride and achievement gained through involvement in YouCount was something that resonated throughout the cases:

> *"The opportunity to represent YouCount that they had worked with for a long time generated a strong sense of pride among the participants. They all wore white customized hoodies with a self-made YC logo and a process subway map on their back (part of the exhibition display). They found joy in being associated with the project and took pride in their contribution. One YCS stated enthusiastic that "it's really fun because you get to*

represent something you are a part of – something you have worked for." Another described their feeling of pride during the workshop, emphasizing the emotional connection to the project. "I was overwhelmed with pride when we were going to showcase the exhibition." (Norwegian case)

3.6 Recruiting, Engaging and Supporting YCS: Key Points

The following key points about recruitment, engagement and support of young people as YCS were highlighted from our analysis of the case reports and other data:

- YouCount relied on professional researchers having good networks and understanding of the 'right stakeholders' to engage with, that is, stakeholders in relevant NGOs, youth organisations and services, and youth leaders who could facilitate and broker connections with young people, as well as offer valuable expertise in engaging with different youth groups.
- Our experience shows that recruiting young people as citizen scientists is an ongoing process rather than a one-off activity at the start of a project. Recruitment strategies needed to flexible (e.g. through stakeholders, word of mouth, activities in schools and colleges, social media, peer-to-peer recruitment), and it was important to expect dropping out of the team as inevitable and natural.
- While monetary incentives and rewards were not possible in YouCount, we learnt that it is important to consider and let young people know about potential benefits at the outset. These may include organising social events, opportunities to meet other young people and stakeholders, the chance for learning and personal development, and travel.
- We found pros and cons for recruiting new versus already formed groups of young people as citizen scientists. Creating a new group requires more time but helps ensure that young people who are frequently not involved in science/research can be citizen scientists.
- Both formal and informal training strategies and techniques were used showing that training is not a one-off activity undertaken at the start of a Y-CSS project. Some of the most effective training strategies were flexible and offered activities as and when needed to suit young people and the project's timeline.
- Aiming to diversify the groups of young people who are involved in Y-CSS requires targeted strategies that are both flexible and recognise the individual needs of the group of young

people. We used several different ways to promote and interest young people in YouCount.

- We found that supporting YCS through one-to-one mentoring schemes, offering ongoing training opportunities, as well as ensuring environments are youth-friendly and supportive were successful strategies for engaging young people. It was important that communications took account of young people's needs and preferences to keep them engaged.

4. Methodologies for Y-CSS

4.1 Introduction

In this chapter we consider what can be learnt from the methodological choices made by the local YouCount cases to inform how Y-CSS can be used to co-create more knowledge of social issues and contribute to positive social change and inclusion through innovation and policy making. We examine the commonalities as well as the differences in research design between the cases, the range of data collection methods used from traditional focus groups and interviews to more creative and participatory methods, including the rationale for using these designs and methods to research social inclusion as Y-CSS projects involving young people. This includes reflecting on the experience of creating and using the YouCount App in collaboration with SPOTTERON. Finally, we report briefly on the data analysis methods used in the Y-CSS social inclusion studies.

4.2 Research Designs

Citizen science (CS) is seen as supporting inclusion and citizen participation in the generation of knowledge, policymaking, and social innovations. Methods of data collection such as participatory action research (PAR) more common in the social sciences are increasingly being used in CS or rather, in citizen social science (CSS). However, as the literature shows the involvement of diverse groups of young people in CS and CSS remains limited, that is, those often 'furthest away from science' do not participate, and there is gap in using methodological approaches that aim to fully engage young people in research and innovations. Early in laying the foundations for setting up and conducting Y-CSS, the YouCount Methodological Framework (Ridley et al., 2022) was drafted to serve as a reference point for individual cases. While this outlined the common empirical questions to be addressed, and some expected elements of the case methodologies, flexibility was at the heart of the YouCount approach. Subsequently it was up to the local case teams to decide together with young people, on the most appropriate and effective research designs and methods to use to address their individual research questions.

YouCount has its roots in both participatory action research or PAR (Karslen & Larrea, 2014) and CS (Strähle et al., 2020). Combining these in a multiple case study, we aspired to conduct scientific practices that were inclusive, flexible, responsible and innovative in implementing co-creative hands-on Y-CSS. We chose to implement hands-on Y-CSS through 10 different and diverse case projects in nine countries (see also Chapter 2). The case topics and youth populations engaged as well as the social inclusion domain that was the focus for each case varied and are summarised briefly in the table below.

Table 4: Summary of YouCount local cases by country, type of area, topic and social inclusion domain.

Country	Type of area	Case topic	Social inclusion domain
Austria	Urban	Which civic engagement opportunities do young migrants have and which opportunities are missing?	Citizenship
Denmark	Urban	How to engage youth in co-designing sustainable activities in their local environment, and can these processes create civic youth engagement and social inclusion?	Citizenship
Hungary-A	Urban	What are the challenges and enablers in becoming autonomous adults?	Social participation
Hungary-B	Rural	What are the constraints and possibilities for sustainable agriculture techniques to be applied?	Community belonging
Italy	Urban	Which are the drivers for social inclusion of young migrants in the hosting local community?	Community belonging
Lithuania	Rural	What does it influence whether young people feel they belong to the local community?	Community belonging
Norway	Urban	What are the drivers for social inclusion through youth employability and social entrepreneurship in the city?	Social participation
Spain	Urban	Which are the inclusion factors for young migrants in our society?	Social Participation
Sweden	Urban	Can engagement in a youth city council lead to other forms of social inclusion?	Citizenship
UK	Urban	What helps, as well as what gets in the way of young people feeling they belong and are connected to Preston? What are the factors (or drivers) that better promote a supportive climate for youth-driven solutions?	Community belonging

Urban Rural

It was anticipated that key features of the social inclusion research conducted by the local research teams were that they would adopt co-creative and participatory approaches using designs and methods to reach and engage young people facing different kinds of disadvantage and living in different cultural contexts. It was central to YouCount that we involved and gathered information from young people's perspectives, including what they understood as social inclusion and what the critical issues were for them. Our aim was to conduct the research on social inclusion *with* rather than *about* young people and to co-create not only the research but also the social innovations (see Chapter 5; Pataki et al., 2023). Also, we aimed to include YCSs in the choice and design of the local social inclusion studies as far as possible, aspiring to be co-creative not only in relation to collecting data but also in the development of the YouCount App and data analysis (see also chapter 5).

It comes as no surprise therefore, that most cases describe their research design as qualitative, with only the Lithuanian case referring to "mixed methods". Indeed, the methodological approaches taken by the cases in Y-CSS were described in multiple ways and to varying degrees of detail. As was underlined by the UK team, the overall research design adopted by the cases was "emergent". A qualitative design was considered the most appropriate to "better understand the

issues and meanings of belonging and connectedness from young people's perspectives." Moreover, the Norwegian team refer to their methodological approach as:

> *"Transdisciplinary co-creation with young citizen scientists and local stakeholders, using a range of visual, sensory, tactile, and explorative methods for doing empirical research in the local neighbourhood*." (Norwegian case)

For several cases, including the Italian case, the qualitative approach taken was described in generalised terms as "activities that promoted collective reflection" on the critical issues of social inclusion and helped identify ideas to bring about positive change in the area. Similarly, the Spanish team's main research approach was "very open" from the start and consisted of qualitative analysis of various data gathered through a series of group sessions or workshops with the R-YCSs, seamlessly combining both training and discussion of social inclusion topics. At the other end of the spectrum of qualitative approaches was what one case described as an "ethnographic approach", involving participant observation, spending time with a local village community that had previously been part of another qualitative research project:

> *"In the course of an eight year-long presence, I have developed more intimate, face-to-face connections with young participants, whose changing individual life course and personal aspirations has been accumulated through ethnographic notes anchored in an extended fieldwork."* (Hungary B case)

Most cases referred to their research design as "participatory action research" (PAR), which, as the Italian case team highlight was felt to be the most fitting design for a project that was aiming to achieve "collaborative change and emancipation, privileging local intervention areas considered marginal or disadvantaged". In support of this another case states:

> *"The approach of participatory action research helps us to explore social inclusion more as it enables us to look more deeply into the interface between researchers and participants, which positions researchers in one space - not only physically - with research participants."* (Hungary A case)

For the Swedish case, the choice of a "creative participatory action research" design was both appropriate for such a project and was also opportune for them as it played to local researchers' strengths and interests:

> *"The choice of methodology was further accentuated by the observation that much of the previous research on political engagement among young people was conducted on the young, not with youth. Another factor was that other researchers at Södertörn University were working with similar approaches, hence there was good opportunities to inspire and be inspired within the research environment."* (Swedish case)

The choice of PAR also resonated with one team's Community Psychology approach (Italian case). It was acknowledged at the start of YouCount that this project combined CSS and participatory research approaches and that this was being tested by the local cases. The Danish case, for example, used "creative methods from the beginning" to recruit and engage young people in a school and a service setting. Scientific methods in this case were "modified to become more creative by being inspired by art-based methods and gamification". As in other cases, the participatory and creative methods used were "non-linear" and developed in an "iterative process". Development of data collection methods was thus more fluid that in other types of CS projects with research questions and decisions about ways of collecting data developing as the research focus unfolded:

> *"We have investigated the research questions and project objectives through a highly participatory action research approach to understand and investigate the field…The framework combines Participatory Design and Actor Network theory to analyze the negotiations during complex design and innovation activities (Pedersen, 2020). In these processes, the researcher is not seen as an expert but as a stager and facilitator. The staging builds network relations (between human and non-human actors) by creating spaces for negotiating concerns…By combining CSS and Participatory design, we must engage the youth throughout most phases of the research and design process."* (Danish case)

4.3 Methods for Collecting Social Inclusion Data

The Methodological Framework (Ridley et al., 2021) envisaged that data collection would be a continuous and stepped process considering the multifactorial understanding of concept of social inclusion and being inspired by previous successful designs of co-creative CSS in local community planning (Richardson, 2017). This was to consist of several interrelated and partly overlapping data collection activities to build insights about social inclusion from young people's perspectives and experiences as well as to understand what new means and policymaking could increase young people's social inclusion. The advised common approach was to start data collection with the young people in the research teams (R-YCS) expanding to involve wider samples of young people from either communities or specific target groups (C-YCS). It was acknowledged that individual cases would also opt to include other creative methods such as photovoice and other visual methods, as well as mapping.

In practice there were common data collection methods across the cases that fall into two types: standardised qualitative research methods such as interviews, focus groups or "workshops" and questionnaire surveys; and second, more creative and participatory methods. Most cases used at least one other data collection method that included visual methods, mapping of some kind, Splot,

world café, or brainstorming. Interviews and focus groups were used extensively across the cases to gather rich information about the experiences and viewpoints of R-YCS about the main topics. Some interviews were conducted by R-YCS with stakeholders or with other young people in the wider community or from target groups such as HH young people (C-YCS). All cases made some use of the co-created YouCount App. Table 3 below summarises the methods used as reported by the local cases.

Table 5: Summary of the type of data collection methods reported by local cases

Local case	Interview with YP	Interview with stakeholder	Focus groups/ Workshops	Survey	Mapping	Creative	YC App
Austria	X		X			X	X
Denmark		X	X			X	X
Hungary A	X		X				X
Hungary B	X	X				X	X
Italy	X	X	X		X	X	X
Lithuania			X				X
Norway	X	X			X	X	X
Spain			X			X	X
Sweden	X		X	X		X	X
UK	X	X	X	X	X	X	X

4.3.1 Focus groups and workshops

Conducting focus groups or holding "participatory workshops" with young people in the research teams (R-YCS) was a common data collection strategy across the cases. Eight out of the 10 cases describe some form of "focus group-like scientific inquiries", which the Austrian case elaborate further as being facilitated participatory discussions that often began with the academic researchers introducing discussion topics and then "we just let their thoughts unfold and became more passive parts of their exchange". Focus group methods were used by the Hungary A case to provide a space for R-YCSs to share their personal experiences of inclusion/exclusion, and also for discussing meanings of inclusive science. Several of the cases therefore, commonly brought R-YCS together in a group or workshop with a particular topic or agenda, that was discussed in a flexible and open way to gather young people's views. These were at times described as regular "meetings" or a series of "sessions" organised by the professional researchers to focus on different social inclusion topics and identify possible methods to use for data collection:

> *"The first ones were aimed at getting to know each other, set up the working group, and define the research goals. During these meetings, R-YCSs were also trained with reference to the methodologies and tools to be used during the development of the whole project-related activities (that is, local case, Living Lab, preliminary territorial analysis)."* (Italian case)

Similarly, the Spanish team organised a regular series of two hourly "sessions" over several months that they described as configured jointly with the YCSs. The sessions had a semi structured content including theory and practical, followed by some time for reflection on what had been discussed. The Danish team also used participatory workshops early in the project with small groups (2-6 young people) to better understand the challenges of social inclusion from young people's perspective. They also later ran "dialogue workshops" about the challenges facing young people and creating innovations to address these. The UK case organised participatory focus groups both pre and post recruitment of YCS to the team. These were used to explore young people's understandings of social inclusion in ways that made the topic accessible to young people, to present themes from the literature review and test whether they resonated with young people, and to specifically explore R-YCSs opinions of gender and its' relation to belonging. The purpose of focus groups with young people run by the Lithuanian case was not only to collect their perspectives on social inclusion but also to recruit more YCSs to replace those who had dropped out of the research team.

4.3.2 Qualitative interviews

Another common strategy used by several cases was conducting qualitative semi- or un-structured interviews. These were conducted by professional researchers or R-YCS and were interviews with peers or other young people in the wider target group or with stakeholders. Interviews were mainly conducted in the early scoping part of the research studies and therefore served to help research teams better understand and elaborate on young people's experiences and also, local stakeholder organisations. It was also a way to inform stakeholders of YouCount and later led to invitations to the Living Labs (for more information see Pataki et al., 2023). Conducting interviews with key stakeholders, therefore, played an important role in how academic researchers scoped and set up their cases. In the Danish case, for example, stakeholder interviews were used by academic researchers to familiarise themselves with the field and the key youth organisations:

> *"Throughout 2021 and 2022, the study involved 32 semi-structured interviews (some with the same actors) with actors from institutions, organizations, and researchers. Interviewing experts in the field created a 'roll the snowball' effect (Merton & Merton R. C., 1968) and led the study toward actors in the field that were not already known from previous studies. It also gave the youth access because we were invited to participate in several youth events and visit different youth institutions."* (Danish case)

In other local cases, R-YCS conducted interviews with local stakeholders, some having this opportunity during the training sessions (Norway, UK, Italy, Hungary B). During training days or workshops, the R-YCS created the questions to ask stakeholders and decided how the interviews should be carried out. In the Norwegian case, some interviews preceded the first Living Lab and had the express purpose of better understanding stakeholders' interests in and possible contributions to YouCount, including recruiting them for the Living Labs. R-YCS from the Italian case were actively involved in the identification of, and later contracting relevant local stakeholders that they interviewed. At an early point in the case, young people in Hungary B conducted mobile phone and video interviews with stakeholders to increase their knowledge of sustainable agriculture and to begin to engage with these stakeholders for the Living Labs. In all these cases, R-YCS led the interview processes with academic researchers taking support roles as necessary.

Interviews were also conducted with young people to better understand their individual perspectives, and these were often peer interviews. Young people involved in the Hungary A case, for instance, conducted individual qualitative interviews with other HH young people from the same area using "collaboratively designed interview guides" that involved five R-YCS and eight C-YCS. The purpose of these interviews conducted variously online, in person or in writing was to increase the research team's knowledge about young people's experience of living with hearing impairment. Similarly, R-YCS in the Austrian case conducted qualitative interviews with their peers using a semi-structured interview guide. During a data collection competition, R-YCS from Norway

collected information about other young people in the area (C-YCS) through interviews. The R-YCS created an interview guide and decided where they would go to find other young people to interview. The data collection teams earned points for the numbers of interviews as well as for creativity. In Sweden, former members of the Youth Council were interviewed by current members to explore the impact the Youth Council had had on them.

4.3.3 Survey methods

Two cases specifically mention designing questionnaire surveys with R-YCSs to reach out more widely to young people in communities (C-YCS). Based on responses to a pilot survey and discussions within the Youth Council, the Swedish research team co-created a questionnaire survey that was used by academic researchers and R-YCS when visiting schools, youth centres and sports arenas to broaden data collection from the youth population to better understand what it was young people wanted to change. In this way data about places where they like to spend time and what improvements could be made was collected from 160 respondents. This was in part conducted as part of pre-App activity to pilot the questions and rating scales that would be used in the YouCount App. A similar interest amongst R-YCS had arisen during the training days conducted by the UK case. Several young people expressed interest in participating in designing a questionnaire survey that could be used to explore a wider group of young people's opinions about Preston.

> *"One of the research students held an online workshop with six R-YCS to share knowledge about questionnaires as a research method. She then asked the R-YCS to consider what questions that they would like to be included and about a distribution strategy. They all agreed that they would each recruit three other young people to complete it. They also said that using social media was a good recruitment strategy. The young people also suggested holding a stall at a Further Education College in an area where lots of young people were likely to pass through and encourage them to complete the questionnaire."* (UK case)

A total of 50 questionnaires were completed either in person at the local college listening event run by the R-YCSs, or the young people's networks or promoting online survey.

4.3.4 Mapping methods

A few case teams used mapping methods for different purposes. These included to identify those places that young people felt safe or unsafe, that they liked or did not like and where they felt they were included. The Italian team for instance, involved R-YCS in the creation of a digital map of the local area identifying the key organisations and social groups that were actively working for the promotion of social inclusion locally. It was also their intention to create a tool for citizens

who did not know the neighbourhood well to get to know the area better and in this respect could become "a valuable resource for migrants arriving there for the first time". This interactive map was used to assign stakeholder interviews to R-YCS, whose purpose was to understand local activities to promote community belonging including any proposals to develop "local togetherness". This was also the start of developing a list of stakeholders to invite to the Living Labs.

Other types of mapping methods include the 'Splot' method, a simple drawing tool for creating dialogue and building relationships, which was can also be used to map places that young people see as good and bad, tracking and evaluating where and when young people feel good (Tolstad et al, 2017). Splotting was used with young people in both the Norway and UK cases to elicit views about place from both R-YCS and C-YCS as well as an equaliser method in training sessions when trainers and young people were getting to know each other.

4.3.5 Creative methods

All of the cases referred often to using what was generally termed "creative methods" at some stage in the research process, if not throughout their projects especially when a participatory ethos was central: that is, from running participatory creative sessions during the recruitment of YCSs to creative and participatory sessions run at various points of data collection. Data collection was characterised by the adoption of "open" and "creative ways" to encourage and facilitate dialogue with young people and hear their voices (see also Chapter 5 on co-creation). Many cases describe how they conducted "open discussions" on various topics, which they recorded on flipcharts with post-it notes, and coloured pens. Individual researchers and indeed some case teams were experienced in participatory action research and creative methods with young people, some were also creative practitioners such as film makers. Deploying creative methods proved effective in engaging young people from different backgrounds with the research topics:

> *"To find research questions, we have followed a zooming in approach. This strategy tried to avoid imbuing research questions by the researcher but rather develop an "aesthetic space". The concept is borrowed from participatory theatre (Boal 2006) and arts-based research (McNiff 2008). It aims at developing a safe forum for generating creative art works based on the personal experiences of the participants...This strategy was meant to let the young participants identify what issues of interest emerge."* (Hungary B case)

Others used a range of visual techniques and exercises such as cards, images, drawings, and gamification methods in group work (Denmark, Hungary A, Norway). Some used photovoice as a "more participatory and inclusive" method, and for young people to deepen their knowledge of the local area:

> *"Narratives accompanying the photos were analysed, contextualised, and discussed along with the participants, thus fostering moments of confrontation and critical dialogue about the limitations and resources of the neighbourhood, as well as about their own living conditions, which allowed them to produce different narratives about their own community, rethinking their role within it...."* (Italian case)

The UK case organised "photography walks", using cameras to further explore issues of belonging from young people's experience and perspectives. The walks led to interesting dialogue with young people about facilities in the city centre and their reflections on belonging. The team reflected that the pictures taken showed more than some could express in words and that visual data were powerful. Another technique reported by the UK team was one developed locally known as 'degrees of agreement statements', which offered an active and fun way for young people to share their opinions about the place they lived. This was also adapted in the questionnaire survey that was later designed by the R-YCS.

4.3.6 The YouCount App

From the start, the YouCount project had the intention to develop an inclusive, user-friendly ICT tool for YCS in close cooperation with SPOTTERON, a citizen science app design company[1], and the YouCount case partners, including R-YCS (Ridley et al., 2022, p 25-29). In Pataki et al. (2023, p26-33) we have presented preliminary analysis of both qualitative and quantitative data collected through the YouCount App, and in the same report a brief introduction to the App and its content (p15).

Recruiting or engaging C-YCS to make use of the App was a highly explorative exercise involving many different strategies and activities. Due to the ethical and legal data privacy restrictions, most cases mainly used targeted invitations to reach the relevant group of youths in the local community, and less mass-promotion strategies. The bulk of invitations had a social network and snowball sampling profile; either it went through local youth organisations, schools and stakeholders or through the R-YCS's personal social networks. In most cases however, it did not seem to work very well with R-YCS recruiting their friends and peers to download and use the App or take part in local App-gatherings. Flyers, posters, QR-codes in strategic places in the community and local stakeholders distributing information in their networks was widely used.

Special events and gatherings were used by most cases to recruit new App users and motivate the existing YCSs to use the App. The events were a mix of local and cross-case initiatives. In January and February 2023, the consortium arranged several joint events. The App Event Week was an intense week where most cases took part by setting up an extra effort trying to recruit C-YCS and

[1] https://www.spotteron.net/

arranging local gatherings and walkalongs: making spotting a social and fun activity, also including various forms of competitions and gamification elements. There were several cross-case digital meetings to plan it, and a kick-off webinar to inspire each other and discussing strategies. Trying to create engagement among young people as this was a European event, emphasizing the possibility of getting to know youths from other European countries was part of the idea. A joint European intensive data collection period might boost the spread and use of the App to test different engagement methods and getting more and richer data.

A two-day 'diary on the go' concluded the App Event Week. The idea was that the youths were invited to use the App more intensive as their diary on a Friday and a Saturday spotting their activities and observations from morning to late evening. Push messages were sent more frequently to all users of the App these days reminding them about spotting. Even if the number of new users registering in the App and the number of spots had as sharp increase, the result was still significantly weaker than expected. Several cases continued to arrange similar local events in the following weeks and months. One feedback on the push messages from the youths were that the text was in English, which for some felt alienating, especially for those not familiar with English. This was one important reason why we did not repeat the European Event Week, but instead encouraged each case to create their own events. Later Spotteron developed a feature making it possible to send case-specific push messages in local languages.

Communication between users, and between users and professional researchers inside the App was also a part of the strategy for increasing engagement, as well as introducing 'gaming', challenges, and competitions. Badges and user ranking built into the App and rewards to the most active users (individual) / groups (collective) of users at local case level were other strategies. The professional researchers managed to increase the engagement somewhat by commenting on young people's spots and sending direct personal messages. But generally, the communication inside the App was rather limited.

Many case teams and R-YCS were involved in planning, preparing, and organizing recruitment strategies for C-YCS to download and use the App. In this way we tried to recruit youths as C-YCS using the App (especially during the App Event Week and the Diary on the go) and then invite them to a meeting (dialogue forum) where they could share their experiences with the App and social inclusion through work. Many cases also presented spots from the App in local and national living labs, and R-YCS (and in a few cases also C-YCS) took part in interpreting and analysing the spots (data). The plan was to present details from specific spots and the overall main patterns found from the shared photos, texts, places, opportunities, and answers to the predefined questions in the App. By doing so we hoped to get thicker descriptions and interpretations, as well as inspire them to continue spotting by the App. This process was harder to implement than expected and these strategies were less successful in most cases. For several reasons, several cases experienced that it was hard to get the stakeholders engaged in the process of spreading the App to their youths.

Despite what we recognise were intensive efforts across cases to engage young people with the App, their engagement was far less than anticipated. It is important to say that there was huge variation in the level of engagement between the cases. Also, it is important to stress that many young people were positively engaged and saw a potential in the idea of using an App. Still the general experience was that for many different reasons they did not spot much. Why was the App less used than expected? A main reason reported during piloting and evaluation of the final App was that many youths felt that the purpose of the App was unclear to them: social inclusion is a rather vague concept which may be challenging to capture in an App. And it seems that was even where the case teams tried to make it more concrete and comprehensible. Another was that even if there were optional tasks in the App, it still seemed too much – there was a sense of young people being overwhelmed by the App. A hectic everyday life with school, friends, family, and activities made it difficult to find time to spot.

Some R-YCSs also noted that it is hard and rather counter intuitive to spot – which means taking up your smart phone and register how you feel and what you do – while being in social settings where one feels socially included and doing activities. To distance yourself from the social 'here and now'-situation does not feel natural, and makes you remove yourself from the positive 'vibes' in the present setting. Together with the long co-creation process – which made some R-YCS tired of the App before it was finalized, the delayed release of the final App due to the ethical considerations, was demotivating. The legal restrictions limiting the personalized user profiles (names, pics, etc) was disruptive and made it less interesting to use the App according to many youths. Linked to all these arguments is the issue of critical mass of users; when the number of users and potential for communication and creating a vibrant community of users; the inspiration, motivation and dynamics that comes with a community of interests are missing. Compared to many CS-Apps in natural sciences where the users are already very engaged in the topic (e.g. bird watchers) and are part of an organized interest group, the topic of social inclusion is possibly less engaging. However, if connected to civil organizations focused on related topics like social exclusion, discrimination, and alienation of young people it may be a potential for stronger engagement with such an App.

4.4 Data Analysis Methods

The Methodological Framework provided guidance for the cases analytic strategies and the intention to conduct cross case analyses. A general thematic content analysis strategy was proposed to identify emergent themes in relation to the aims and research questions for the empirical study (Silverman, 2020). Naturally then, cases reported using standard qualitative content and thematic analysis methods to identify and report on the key themes from their data collection. These were both inductive – themes were grounded in and emerged from the data -

and deductive – key themes were pre-determined from the research aims. Although not all cases detailed their data analysis methods in the case report, some general findings about approaches can usefully be summarised here.

A deductive content analysis method was applied by, for example, the Lithuanian case using the key codes: social inclusion, social exclusion, social belonging, drivers for social inclusion, obstacles to social inclusion that were driven by the overarching project research questions. "Thematic analysis" with reference to the methods of Braun and Clark (2006, 2022) was identified by both the UK and Italian cases. This included the steps of data familiarisation, coding, generating initial themes and developing and reviewing the themes. Teams used a range of software to support analysis and help manage the qualitative data including MAXQDA and NVivo. The Danish case used the method affinity diagram (Beyer & Holtzblatt, 1997) to cluster the data into themes.

Case research teams made various attempts to involve the R-YCS in the data analysis:

> *"A lot of the staging has been done by professional researchers "backstage," where the youth have been engaged in the "front stage." This decision has strategically avoided overwhelming the youth and making them work with what they find interesting. Research is done at several levels, both at a meta-level (backstage) and then in concrete situations with the youth (front stage)."* (Danish case)

> *"For facilitating analysis of data with the R-YCS we have used a tool called "seven steps to analysis" that we created in another project. It is a comic strip where we have employed the metaphor of "cleaning up your room" to guide the data analysis process. In this metaphor, clothes are the data material. Additionally, the R-YCS actively contributed to the analysis by applying their own definition of social inclusion as an analytical tool."* (Norwegian case)

Some cases referred to an adapted narrative analysis applied to analysing visual data, generating dialogue with young people and stakeholders in response to photographs for instance. The Norwegian case also adapted various participatory data analysis methods used in other projects including 'Crazy 8', a tool from service design that prompts participants to generate eight ideas in eight minutes. After an initial stage of analysis conducted by the professional researchers, the UK team held meetings with R-YCS to involve them in analysis and consider the three key empirical questions. Key areas identified through the process subsequently informed the planning for the second Living Lab, ensuring that young people's ideas and interpretations were at the heart of what was communicated to the local stakeholders.

5.5.1 Analysis of YouCount App data

Several cases involved R-YCS in analysing the App data in different ways. The Danish case did it in a high school setting engaging students in coming up with ideas for sustainable youth activities, printing out spots on paper and using those in creative work. In the Norwegian case the R-YCS was involved in making an interactive map for the exhibition, printing out maps (analogue techniques) and analyzing the App data in a workshop setting. In the Norwegian case the spots gathered as part of a dialogue forum was followed up by a session for interpreting and analyzing the data printed out on paper. The process was, however, not straightforward: during the process of going through the App data and analyzing it one of the R-YCS exclaimed in frustration: "We have so much information, yet so scarce". Still, the R-YCS managed to tease out three categories which were transferred and visually presented onto the interactive map. In the Hungary A case, the App data was transferred to another digital program presenting a map over the city showing which places HH young people were welcomed and felt included. Similar mapping was also part of the interpretation process in the Italian case. The responsible researcher (Brattbakk) then conducted validation and overarching cross-case analysis concerning social inclusion as outlined in D3.2.

4.5 Research Designs and Methods: Key Points

The following key learning points emerge from our analysis of the experience of the YouCount cases in implementing research designs and methods for hands-on Y-CSS.

- The most common research designs used by the YouCount cases were "qualitative", "participatory" and "creative" as these were considered the most appropriate in practice to fully engage young people in exploratory research about social inclusion and social innovation.
- Combining CS and PAR in Y-CSS was, however, challenging. There is a tricky balance to be struck between generating substantial data through citizen involvement in CS and democratic engagement and participation of citizens in the research enterprise.
- Focus groups and participatory workshops as well as semi-structured qualitative interviews were used to gather in-depth information about social inclusion with, and from young people and other stakeholders.
- Engaging young teenagers and groups which are less likely to be involved in science/research required at times using innovative and participatory data collection methods as these had the best chance of engaging young people as well as gathering meaningful data.

- In the proposal stage of the project, we recommend to carefully consider whether the project will benefit from an App – do you need it? The more focused the project is, the more fruitful an App will be (clear topic and purpose), more careful consideration is needed the more sensitive the topic (data privacy and ethical considerations, age limitations, level of personalized user profiles). Finally, a reasonable question to ask is: Could the same information be extracted from existing Apps or social media platforms?
- In designing a successful app for Y-CSS, make it simple and short, not too long or too complex but still be flexible! Yes to photos, videos and sounds and have well-developed features for communication with and between users.
- A variety of approaches were used when planning for how to use the App. In conclusion: except for a few users who found meaning in using the App as a form of public diary documenting their daily life through the lenses of the topic of the local YouCount case (individual approach), the App seemed to have the most successful use when used in a social setting organised around clear research questions and tasks (collectively), for example, in school settings.
- Using techniques including apps for mapping places where young people spend their time and recording how they feel there and what opportunities there are for belonging, inclusion, safety etc. proved useful starting points for dialogues with young people in workshops, dialogue forums and Living Labs.
- Thematic data analysis and content analysis methods were needed to analyse the social inclusion data generated from participatory focus groups, interviews and other creative methods. It was possible to involve young people in thematic data analysis especially using creative methods.

5. Realities of 'Co-Creative' Practice

5.1 Introduction

The Conceptual Framework (Butkevičienė et al., 2021) established at the beginning of the project proposed that YouCount should conduct 'co creative' Y-CSS research about social inclusion. This was underpinned by Karslen and Larrea's (2014) territorial development action research framework, concepts of 'responsible' research (RRI) (Bardone & Lind, 2016), and dialogical principles for democratic engagement in research. Importantly, 'responsible' research approaches were perceived as more active engagement in research than a recipe to be implemented in a certain way. Typologies of citizen scientist engagement in CS (Heinisch et al., 2021; Bonney et al., 2009, 2014; Haklay., 2013) suggest this can be measured by involvement in levels of scientific activity such as, finding a topic, collecting data, analysing and interpreting data and publishing data. Bonney et al., (2014) differentiated between engagement as contributory, collaborative or co-creative.

In this chapter we set out to explore co-creation in practice through thematic analyses of the Youcount case reports (10) and other data (e.g., evaluation self-reports data, WP 2 meeting minutes, notes from other consortium discussions). We find that co-creation was indeed more complex to define and that it was multi-layered in practice. In this chapter we explore what 'co-creative' looks like in the YouCount cases. Specifically, how the research focus and questions were co-created in the individual cases; how co-creative decisions were taken about the data collection methods including the YouCount App; and co-creative data analysis and dissemination. The chapter concludes with key learning points from experience regarding the possibilities of co-creation in Y-CSS.

5.2 Creating the Right 'Environment' for Co-Creation

All case reports highlighted the importance of creating the right 'environment' in the research team for co-creation to flourish. They often referred to "staging negotiation spaces" or "setting the right scene for co-creation". This also included researchers having skills or developing skills in participatory research design. For the Danish case, collaborative processes where the researcher was "stager and facilitator" were what made it possible to be co-creative. Researchers in the Hungary B case referred to developing an "aesthetic space" whereby researchers and citizen scientists could engage in co-creative practice. Others suggested there needed to be "space for co-creation and flexibility" in respect of several aspects of the case projects including the training (Norwegian case). Co-creation does not happen in a vacuum. Similarly, the Swedish team

mention the need for a "good atmosphere for co-creation", essential to establish the trust and openness needed between young people and academic researchers, and to ensure that young people as YCS would be "an integral, active part of the case study from its very beginning".

Some aimed for co-creation "as much as possible" but found it more challenging to create the stage for co-creation when starting from scratch with a new team of researchers and young people: those cases with existing and a more consistent group of YCS found it easier to achieve co-creation. There were limits to being fully co-creative in the early stages when the research team and group of YCS was forming, that is, when the imbalance in knowledge and power was in favour of the researchers:

> *"…given our starting point was recruiting new young people who would not necessarily know each other, had never come together as a group, and most likely would be unfamiliar with social science and research…the distinction between data collection with the YCS and co-creation was often hard to implement especially in the early stages while we shared knowledge about research methods and built the relationships with and between the YCSs."* (UK case)

This also speaks to what was mentioned earlier regarding incentives and being clear with young people at the outset about what was expected and what the benefits of becoming a YCS might be for them. Putting cocreation into practice with YCSs was challenging for some cases grappling with the lack of financial incentives and concerns not to overburden volunteer YCSs (Austria).

5.3 Getting the Relationship Right for Co-Creation

Next, the case reports invariably identified key relational aspects of co-creation. Relationship building was an essential part of co-creation, with cases identifying the need for "horizontal relations", and blurring distinctions between 'research participant' and 'researcher' as essential for collaborative co-creative relationships:

> *"We felt it less and less that we were "working on the inclusion" of HH members, rather we established and built relationships with them in a delicate manner. We were working on "defragmenting" our community. In other words, the relational aspect of the collaboration (i.e. to connect in a meaningful way) became a decisive element of the whole process…."* (Hungary A case)

The Spanish team refer to investing in personal and individualised approaches with YCSs, including keeping in contact via telephone, using simple language and sharing food and socialising, which helped to "develop relationships, build trust and confidence of young people to share their views

and ideas = co-create". This helped break down barriers and any natural hierarchy in the team, which they say led to building confidence and engagement of YCSs. It helped to have established relationships with young people, and some cases were able to draw on the trust and bonds forged over years in some communities and with young people, which "facilitated co-creation at different levels" (Hungary B). This was not to say however, that relationships for co-creation could not be built from nothing just that it took these cases longer to establish patterns of trust between the professional researchers and young people.

5.4 Establishing Co-Creational Dynamics

Cases set out to create 'co-creational dynamics', for instance, the Austrian case describes starting with discussions about "adequate wordings and framings for certain scientific terms and inquiries", which gave YCSs some control in determining the research topic and the research approach. The Spanish team comment on the evolving process of co-creation through the dialogical forums or meetings they organised, which emphasised listening and discussion:

> *"Throughout the process we as researchers have pointed out the direction for the discussions, but carefully listened to the responses and ideas from the R-YCS and redirected. 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. In this way we as researchers came closer to the perspectives of reality as the R-YCS are experiencing it. This methodological approach to co-development and participatory research has truly led to a mutual understanding on which interventions such as living lab, dialogue for agora and the social innovation can be built."*

The UK case team highlight the importance of allowing sufficient time for group formation through regular research team meetings to reduce power imbalances and encourage opportunities for sharing. This was also achieved through organising more informal social meetings and meals. Establishing co-creational dynamics was described by the Austrian case team as "constructing together" case specific questions, the app, and planning the national workshop. This sense of organising ways of planning together with young people what would happen at Living Labs was also amplified by Hungary B where YCS suggested and selected group activities and proposed who should be invited to the LLs and other forums.

5.5 Co-Creating Research Topics and Questions

Local case teams were expected to tailor and modify the topics and research questions they would address through collaborative processes with the YCSs (Ridley et al., 2022). This would ensure empirical evidence collected would be tailored to the issues identified by young people and appropriate to each case, while at the same time, answering basic overarching empirical questions as part of a multiple case study design. This was seen by the cases as a "natural" part of the participatory and co-creative ethos of the YouCount. However, the journey of involvement was different in every case. In the Swedish case, early discussions with young people in the Youth Council identified an issue about the lack of opportunity for young people to discuss issues related to their everyday experience, additionally members of the Youth Council did not feel that young people had political influence. Thus, the research topic of political engagement became an "obvious choice":

> *"The BYC members own experiences of being part of a group related to the municipal governance also spurred the idea on how to relate political and civic engagement to social inclusion. The two research questions came about as a clear result of these initial discussions over Zoom: Is political engagement a way to social inclusion? How can BYC contribute to making more young people politically engaged?"* (Swedish case)

In the UK case defining the research questions with the YCS was more of an evolutionary process. This and other cases, started the social inclusion research from a broader interest in one of the three social inclusion dimensions – participation, community belonging and citizenship – whereas some cases began from a predetermined topic such as, exploring social entrepreneurial opportunities for inclusion, permaculture as a mechanism for inclusion or the inclusion through the circular economy. Starting with the main empirical research questions to be addressed by YouCount as its' baseline, the UK team developed questions from exploring the literature, which were further refined through discussions with the YCS group as that relationship developed:

> *"The questions asked continued to evolve and be refined as the project developed and the relationship with the YCS and research team grew, adjusting and adding further questions to gain deeper insights based on what young people told us. The YCS took some of the questions, for example, from the 'statements of agreement' tool and used these to formulate a survey questionnaire they administered to gather information from more young people…"* (UK case)

The Danish and Austrian cases referred to an "iterative process" that meant their research questions and topics did not deviate radically from that posed by YouCount about social inclusion or the original topic focus. Research questions became more "nuanced" through discussions with YCS. Sometimes this followed reflections after data collection efforts to increase knowledge of the

original research problem and aiming to locate the research more with young people's concerns and experience:

> *"The first kick-off meetings were designed to create a chill and relaxing atmosphere, where the youth guided us to the aspects that they are most interested in. This way, we were able to have a quite open research interest ("political and civic participation possibilities and needs of young refugees in Austria"), while simultaneously maintaining room for their suggestions…"* (Austrian case)

Several cases then described being more structured in how they involved YCS in defining and refined the research questions to be addressed by the case. This included the Danish case working with schools giving students written assignments and giving instructions on problem formulation, involving identifying and rating problems according to innovation, realism, youth involvement, sustainability, and relevance. In the Italian case, a staged approach was evident, first encouraging YCS to become familiar with the literature about social inclusion processes, with a specific focus on migrants, youths, and gender issues. In the first group building and training meetings YCS with the professional researchers they discussed what they had learnt from the literature and data gathered through stakeholder interviews, and this was used to then construct the question that guided the case study. The Hungary B case similarly describe a staged process whereby YCS are involved in co-creating the research question and topic:

> *"The new team bracketed the list of previous questions, and formulated an additional more specific three step focus for the remaining time. Participants agreed to the following thematic schedule to which thematic sessions were attached. Each session consisted of experiential activities and a reflection circle at the end of meetings through which we discussed the emerging main question of their concern…* (Hungary B)

Defining the research topic and question through a series of dialogical sessions also led the Spanish case to identify research training needs:

> *"…co-creation was first to define the research topic, the research questions and the questions for surveys and focus group interviews in a participatory manner, building on the experiences of the R-YCS. These co-creation sessions were combined with training in basic research methodologies and considerations, and emanated into a guided, participatory research design."* (Spanish case)

As part of these dialogue sessions with YCS the Spanish team developed questions from what young people wanted to ask and identified the topics and methods to focus on to ask these questions. This was portrayed as a collaborative process between academic researchers and YCS - "the sessions were configured jointly, as there were no previous questions that they had to answer". In an early session with the YCS, leisure and sports were identified as common in

accounts of young people, which then led to a discussion about the importance of constructing research questions relating to these topics. In this sense the questions addressed were youth-led.

5.6 Co-Creating Data Collection and Analysis

The importance of using creative and participatory methods at all stages of the research including dissemination was associated with the co-creative ethos – "YCS used 'creativity' to present their ideas and innovations in various ways and locations" (Danish case). Some cases, Hungary A, for example, felt that all research activities were co-created, with YCSs being involved in creating data collection tools, collecting the data, analysing and disseminating findings. Others identified co-creation happening at specific points, for example in data collection – "using a range of visual, sensory, tactile, and explorative methods for doing empirical research in the local neighbourhood" (Norwegian case). While the UK case had adopted a participatory ethos and aspired to co-creation throughout the research process, the time taken to build relationships with the YCS constrained the extent to which data collection methods could be co-created:

> *"Although it had been our ambition that data collection and discussion with YCS would lead to a co-created research project designed by young people with new research questions and the methods decided by young people, the process did not unfold exactly in this way. Yet, YCS decided on how they would hold listening events with other young people and they were involved in the process of co-analysis of the social inclusion data."* (UK case)

Some case reports refer to young people's involvement in data analysis (see Chapter 4 Methodology). In this chapter it should be noted that some cases went to lengths to fully involve YCS in analysing the data, even if this was not comprehensively organised. As researchers from Sweden noted:

> *"The data analysis-workshops worked particularly well, with the R-YCSS really leading the discussions and giving us researchers a necessary context for interpreting the data."* (Swedish case)

Similarly, Denmark, Norway, UK and Hungary A refer to using participatory and creative techniques to involve the YCS in co-creating the analysis of findings. However, none of the partners reported YCS involvement in writing the case reports, although some used novel methods for scientific communication including exhibitions (Italy and Norway) and YCS from all cases were involved in the ECSA seminar and subsequent paper written reflecting on young people's experience of YouCount. Making a judgement therefore about whether co-creation has happened in relation to research methods and dissemination is difficult. As a researcher from the Norwegian case reflected:

"…some of the dissemination activities of the Norwegian team can be called co-creative, as they had an open outcome and were not pre-designed activities, but the level of engagement was only made possible because we had additional funding from the Norwegian Research Council (for co-creating an exhibition and documentary). Our youth has not been co-writing with us (yet)."

5.7 Co-Creating the YouCount App

The idea of co-creation regarding the YouCount App started at the proposal stage of the project, when the case researchers invited SPOTTERON, the CS app development company, to join the project as experienced designers. The basic features and design of the App were presented to the whole consortium and discussed in the App Working Group. This comprised researchers from each case, and a smaller App Manager Group met to discuss day-to-day issues, both to support the co-creation of content and the co-development of features in the YouCount App. During meetings, SPOTTERON developers discussed the possibilities of transforming the traditionally natural science-oriented CS App into a CSS App that collects both quantitative and qualitative data.

Early in the co-creation process when not all partners had recruited YCS, the App Working Group decided to make a prototype, which was also a pragmatic one to ensure that the process would not be delayed: it was crucial to have a concrete suggestion ready when more YCS joined the project. The App content was translated by the partners into all relevant case languages. A prototype was released in March 2022 and piloted by a successively larger group of YCS until August 2022. During this time the consortium had many co-creative workshops at the local case level and cross-case digital meetings presenting and discussing inputs from all partners. Various important changes were made including adding a question about opportunities related to the three dimensions of social inclusion used in YouCount - participation, belonging and citizenship.

Table 6: Timeline of the YouCount App co-creative process with the list of participants

Timeframe	Co-creative phase	Participants
Jun – Dec 2021	App basic design delivery	SPOTTERON
Jun 2021 – Jan 2022	Content co-creation and feature co-development	App Working Group, SPOTTERON
Feb 2022	Content validation	R-YCS, case researchers

Mar – Jun 2022	Piloting phase	R-YCS, case researchers, App Working Group
Jun – Sept 2022	Co-creation of the final version	App Working Group, SPOTTERON
Dec 2022 – Jun 2023	Data collection through the App	R-YCS, case researchers
Sep – Nov 2023	Data cleaning and analysis	App Working Group, OsloMet
Nov 2023	Evaluation of the App	App Working Group, OsloMet

The final version of the App was released in December 2022 and used for data collection in cross-case campaigns, case campaigns and individually by YCS and researchers alike. The main aim of the data collection campaigns was to better understand how young people use the App and to receive the first data set of large-scale social inclusion contributions. Our collaborator, SPOTTERON, developed new features especially useful for Y-CSS during our project for the YouCount App Toolkit and the App platform. Among regular App system, data recording and interface improvements and App management, IT infrastructure, system and App updates, major changes and new feature development for the Citizen Science App included:

- **Language implementation/translation** - translation into core languages was an important step for user inclusion and data recording without language barriers.
- **Pilot area per-country data access & per-country push messaging** - extended data administration to widen access to data, increase community management and communication.
- **Personal data consulting and integration of privacy ethics in digital CS** - integrated user forms and system with data protection and data minimization in mind.
- **Parental Consent System** - together with the consortium, SPOTTERON developed a parental consent system.
- **Co-creation process** -the app went through revisions, changes, and extensions, integrating the co-creation process by the consortium into the digital toolkit.
- **Popup functionality** - development of a popup box including the possibility to include an end survey link to an external website/survey or information page.
- **Data visualization overlay** – an in-App dot map that displays average feedback rating per map area in a colour code and hosts heatmaps/dotmaps by area.

The piloting of the App has varied between cases, but workshops where the prototype and the final version of the App have been introduced and tested by YCS and professional researchers in collectively organised settings, including walkalongs, have been widespread across cases. Many

cases have also encouraged individual use of the App by the YCS in their daily lives as part of piloting. Sessions have been organised where the R-YCS have given feedback, responses, and suggested inputs to all aspects of the app. These inputs have been brought forward to cross-case digital meetings by the professional researchers (verbally and in writing, including combined in online meetings using Miro-boards). On some occasions R-YCS have also been present in cross-case meetings taking part in the discussions.

In some cases, timing has been an issue for co-creation; it was a challenge to include YCS early in the co-creative process as they were not yet recruited when the design process started. Several case partners also reported that it was challenging to coordinate so many different cases with slightly different focus and research questions. This resulted in too many interests reflected in the App. Even if we all agreed, and learned from the professional designers, that an App needs to be simple and have a clear focus, it was hard to implement this as all partners wanted their case focus to be reflected in the App. An observation from the App working group is also that it is important that all the researchers in the local teams have a dedication to the App, probably due to a combination of experience, competence, and interest with digital – and quantitative data collection tools in research. This was especially pertinent as the developing, piloting and use of the App was integrated in the training of R-YCS and in developing research questions and other methods and activities in many cases.

5.8 Living Labs - Natural Spaces for Co-Creation?

While Living Labs (LL) were commonly seen as forums that were "naturally co-creative" as they brought young people, researchers and stakeholders together in co-creative dialogical forums, the Danish case used the setting up of the LL in itself was an opportunity to be co-creative:

> *"Before the living lab, the study met with the students who wanted to participate in the festival. During this meeting, the content for the living lab was negotiated and co-designed through a framework discussing what to do and how…" (*Danish case)

As the UK case suggested, the LL setting was in itself a co-creative and collaborative setting, with "YCS involved in every step of the social innovation cycle", including the identification of issues, researching and analysing findings, sharing with stakeholders at the LLs, as well as collaborating on identifying actions and further issues for exploration. Although not always clearly reported in the case reports, YCS were active players in stakeholder recruitment to the LLs (Spain, UK, Denmark, Italy). Across cases, mapping and identifying relevant stakeholders represented an initial co-creative process involving the R-YCS. In the Italian case YCS approached stakeholders for interview, which assessed if there was interest and if it was relevant for those specific stakeholders to be part of the LL. Thus, they managed to identify the most pertinent and

committed stakeholders. However, the decision about which stakeholder to invite to LLs was not always taken democratically:

> *"Due to inherent party biases, we did not contact all political parties to ask if they would become a stakeholder. The far-right party (FPÖ) was left out due to their strong anti-refugee policies. We did not want to make our citizen scientists feel uncomfortable when having to face their resentments."* (Austria)

5.9 'Co-Creative' Practice: Key Points

- Experience of implementing co-creative Y-CSS found that "setting the right scene for co-creation" was important, for instance, creating an "aesthetic space" whereby researchers and citizen scientists can engage in co-creative practice.
- Secondly, getting relationships right for co-creative processes to happen was critical – there is a need for "horizontal relations" and for blurring distinctions between 'research participant' and 'researcher'. The time for planning when developing and implementing co-creative projects needs to be considered.
- Co-creational dynamics or processes were needed for co-creation to happen in practice. These included having discussions about research words or jargon, ensuring YCSs can participate in determining the research topic and the research approach. Processes might include dialogical forums or meetings so that researchers and YCS listen and discuss issues openly.
- Cases adopted a mix of approaches to involving YCS in determining the research topic and questions local case teams would address. This happened 'naturally' or gradually in some cases while in others a more staged or organised process facilitated such discussions.
- More time is needed to involve young people in co-creating the methods for the cases and this requires time. Involving YCS in collecting data also needs time factored in for training on research methods.
- In the early stages of the co-creative process of developing an App in the project, it is crucial to involve young co-researchers as well as professional designers/developers and researchers who are interested (and critical). But not too many!
- Focusing only on the full involvement of citizen scientists throughout the scientific process seems overly simplistic and does not appreciate the levels of co-creation achieved in the YouCount cases.

- Co-creation is a diverse phenomenon that is context sensitive, and which is affected by the time and resources available to support levels of engagement across all aspects of scientific research.
- Participatory and creative research methods work better than standard data collection and analysis methods to foster co-creation in Y-CSS.
- Our assessment of the co-creation achieved in YouCount hints at the need to refine CS typologies that suggest hierarchical levels of involvement need to be satisfied to be able to say that co-creation has happened.
- Even though most cases fell short of what is generally regarded as co-creative, this felt more than 'contributory' or even 'collaborative'. Being clear about what we mean by co-creation and how we will know when ambitions have been realised seems an important lesson to learn for future projects.

6 Summary and Conclusions

The analysis of the case reports and other documents highlights some key points about implementing hands-on Y-CSS. Firstly, as YouCount was experimental and innovative, each of the 10 local cases of youth citizen social science (Y-CSS) had to determine the appropriate infrastructure needed to deliver co-creative Y-CSS at the local level, identifying and allocating the necessary professional researchers and other resources to implement the project, and securing good project management. This was an evolving and dynamic process for most local cases who faced many challenges including juggling workloads and budgets to deliver such a complex project in the timeframe. Case teams ranged in size from five to 13 and although some remained the same throughout, there was change in most teams and they benefited from bringing in further expertise including postgraduate student researchers in time-limited paid positions. Being similar in age to many of the YCS, young students could more easily bond with the YCS and brought an important youth perspective to the teams, acting as a bridge between young people and the scientific/academic community. Time, staffing resource, workload management, and budget needed to be managed flexibly, for instance, ensuring that there was sufficient capacity within the team to share the complex workload.

Analysis of recruitment and engagement strategies with young people highlighted the importance of stakeholders as gatekeepers and as key to securing successful youth recruitment. This was facilitated by professional researchers' previous relationships with communities, NGOs and youth organisations. Mapping those pre-existing relationships and engaging with key community members such as youth workers to facilitate access to diverse groups of young people is vital, and this requires time, resources and effort which should not be overlooked in CS research. Moreover, recruitment was not a one-off event, it was necessary to recruit young people throughout the project in many cases as there are likely to be young people who drop out for a variety of reasons, some of this is "natural" as other priorities take over young people's lives.

Building relationships and trust with young people alongside increasing their motivation to be involved in Y-CSS projects, promoted continuous engagement and meaningful experiences and learning for young people. Increasing the intrinsic motivation for volunteering and engaging in CS while acknowledging the youth context (e.g., issues, interests, motivations) is crucial. By providing a mixture of formal and informal or youth-friendly activities and attitudes, encouraging peer-led/youth-led coordination and co-creation, increasing visibility of CSS projects and providing innovative rewards (not necessarily monetary) facilitated engagement of wider youth groups in YouCount. Youth-friendly approaches to research and engagement contributed to promoting meaningful roles as co-creators and valued participants in YouCount. Recognising young people as experts while actively involving them in the various stages of the research process allows a better understanding of research, roles and responsibilities within the project. Additionally, training, support and incentives stimulate engagement.

Monetary incentives were appreciated, although were not common in YouCount cases and difficult to provide. Instead, other types of rewards and creative ways of engaging young people were utilised. Training played a crucial role in equipping young people with knowledge and skills regarding data collection and analysis methods, although this was not used as a one-off activity at the start of the project but more responsive to young people's needs to learn about certain research methods as the project unfolded. Combing training with activities for group formation (bonding) and other creative activities was an appropriate way of combining the academic/scientific nature of research and allowing for non-formal easy to access content. Additionally, practicing the research skills or 'hands-on' research was valued and stirred up interest about CSS among young people. As part of support, having youth-friendly spaces and approaches to work, providing mentoring and professional / developmental guidance outside the project and being flexible to young peoples' time and needs proved successful.

YouCount proved to enable an open platform for dialogue between young people and stakeholders, bringing them together around the table and hearing the various voices. For some young people, this represented a first instance of 'being listened to' or experiencing social inclusion in this format. That is, creating meaningful experiences for stakeholders within the innovative processes (such as the Living Labs) stimulated further engagement of young people and stakeholders and allowed for continuation of discussions and actions post-YouCount. This demonstrates the positive impact of the YouCount as a starting point for social innovation, inclusion and the co-creation of solutions.

The most common research designs used by the 10 YouCount cases were "qualitative", or described as "participatory" and "creative" as such designs were the most appropriate in practice when aiming to fully engage young people in exploratory research about social inclusion and social innovation. Combining CS and participatory action research (PAR) approaches in Y-CSS was, however, a challenge and the tension between generating substantial data through citizen involvement in CS and democratic engagement and participation of citizens in a co-creative approach must be acknowledged and resolved. More traditional research methods such as focus groups and participatory workshops, and semi-structured qualitative interviews were used to good effect to gather in-depth information about social inclusion with, and from young people and other stakeholders. These methods, therefore, have a place in co-creative Y-CSS. Engaging young teenagers and groups which are less likely to be involved in science/research required at times using innovative and participatory data collection methods as these had the best chance of engaging young people as well as gathering meaningful data. Planning what data will be used from participatory sessions does need to be thought through in advance so that this becomes part of a body of rich non structured qualitative data that can be analysed thematically. It was shown to be valuable to involve young people in thematic data analysis of the data especially using creative methods, and that they bring new insights to the table.

We concluded that in planning a CSS project, it should be carefully considered whether the project will benefit from a digital App, is it really needed? The more focused the project is, the more fruitful an app will be (clear topic and purpose), and more consideration needs to be given to using an app in projects with more sensitive topics (e.g. need to think about data privacy and ethical considerations, age limitations, level of personalised user profiles etc.). It would be reasonable to ask whether the same information could be extracted from existing data or social media platforms, and if it could be gathered more successfully using other methods. Data collection apps are not necessarily popular with young people even if digital technology is – young people use apps such as TickTock and Instagram more interactively in their daily lives. In designing a successful app for Y-CSS, therefore, it is necessary to make it simple and short, not too long or too complex but still to be flexible! The cases used a variety of approaches for using the App in their social inclusion studies. However, except for a few users who found meaning in using the App as a form of public diary documenting their daily life through the lenses of the topic of the local YouCount case (individual approach), the YouCount App seemed to have the most success when used in a social setting organised around clear research questions and tasks (collectively), for example, in school settings.

In conclusion, although co-creative Y-CSS was a key ambition in YouCount, focusing only on the full involvement of citizen scientists throughout the scientific process seems overly simplistic and does not appreciate the levels of co-creation that can be achieved and how valuable this is to young people. Co-creation is a diverse phenomenon that is context sensitive, and which is affected by the time and resources available to support levels of engagement across all aspects of scientific research. We found that participatory and creative research methods work better than standard data collection and analysis methods to foster a co-creative approach. Our assessment of the co-creation achieved in YouCount hints at the need to refine existing CS typologies that suggest hierarchical levels of involvement need to be satisfied to be able to say that co-creation has happened. Even though most cases fell short of what is generally regarded as necessary for the third and aspirational level of engagement, this still felt more than ‘contributory’ or ‘collaborative’ and to label what was achieved as such seemed derisory and to be missing something. Being clear about what we mean by ‘co-creation’ and how we will know when ambitions have been realised seems an important lesson to learn for future projects.

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