

Empowering young change-makers

A tool that enables children activation in their community trough a child-led approach



Master thesis
Samira Miccolis
MSc Design for interaction
Industrial Design Engineering
Delft University of Technology

MASTER THESIS

Empowering young change-makers

A tool that enables children activation in their community through a child-led approach

August 2020

Author

Samira Miccolis

MSc Design for Interaction
Faculty of Industrial Design Engineering
Delft University of Technology

Graduation committee

Chair| Ir. M.A. Gielen

Department of Human-Centered Design- Design Conceptualization and Communication
Faculty of Industrial Design Engineering
Delft University of Technology

Mentor| Ir. A. Calderón González

Department of Human-Centered Design- Design Conceptualization and Communication
Faculty of Industrial Design Engineering
Delft University of Technology

In collaboration with:



Play Well Lab (PWL)
Faculty of Industrial Design Engineering
Delft University of Technology



Participatory City Making Lab (PCM)
Faculty of Industrial Design Engineering
Delft University of Technology



Urban City Network/Rete Civica Urbana
Municipality of Bari (Italy)/ Comune di Bari (Italia)
In OIKIA Project| Progetto OIKIA

Empowering young change-makers

A tool that enables children
activation in their community
through a child-led approach

Samira Miccolis

MSc Design for Interaction
Faculty of Industrial Design Engineering
Delft University of Technology



"...Siccome è quasi impossibile modificare il pensiero di un adulto, noi ci dovremo occupare dei bambini. Gli uomini e le donne che formeranno la nostra prossima società futura, sono già qui adesso, hanno 3 anni, 5, 7..."

"... Since it is almost impossible to change adults thinking, we will have to take care of the children. Men and the women who will form our next future society, they are already here now, they are 3 years old, 5, 7 ... "

Bruno Munari

Acknowledgements

At the end of this reciprocal empowering and creative journey I would like to thank all the persons that have been part of it, in my thanks list:

Thanks to my supervisory team, Mathieu and Alicia, to believe in this project and support it with all your expertise and constructive feedback and spreading positivity through the many video calls. Thank you, Mathieu, for making the right questions and helping me to find the focus in the richness of this project. Thank you, Alicia, for making light on the dark sides of this journey. It has been an inspiring pleasure to work with you.

Infinite thanks to Carmen De Sandi and Abra Lupori from the Urban civic network. Thank you, Carmen, for that chat over a coffee, you unveiled me a world of possibilities and for connecting me with Abra and literally make this project possible. Thank you, Abra, for your availability, time, passion, and willingness to experiment with new growth paths. I was thrilled to see from close how much design could do.

And the biggest thanks goes to all the children who were protagonists of this project: Alice, Antonio, Aurora, Dalila, Federica Flavia, Francesca, Giuliana, Kevin, Meba, Michelangelo, Olivia, Roberta, Rosa, Stella. Thank you for letting me be part of your crew and being patient to share all the thoughts jumping in your minds. I hope you enjoyed the journey and I can't wait to meet you in person. (I know how important it is for you to see your pictures in a "real book", so in case they are not enough I would like to dedicate you this page).

Thanks to Davide, Angelica, Silvia, Gabriele, and the children of the ISD after school who also were part of this journey for a bit.

Now a thank full of love for Franci, anything would be the same without your intense unconditional support. This thesis is not an exception.

Thanks to all the beautiful persons and designers I met and had around me here in the Netherlands: Cate (Kina), Albi, JJ, Maira, Pablo, Cesar, Dario, Carlos, Fabi, Natasa, Marianne, you are a constant source of inspiration and joy.

And the ones I felt close from far away: Marco, Chiara, Giuliana (Gianna), Annarita, Flavia and Tania.

And finally grazie a mamma, papà e nani per essere sempre e comunque supporto e casa.



Executive Summary

Children's participation in society is still limited without the establishment of appropriate areas, and the possibility to access the spheres of urban activism, children risks to remain invisible citizens. While children don't get the chance to unleash their creative talents in the innovation playground society is turning into, society lacks their contribution as playful and constructive dis-organizers of the world.

Based on those background premises, the current project focuses on exploring how children can participate in society without a top-down involvement and how they can be supported in the process of empowerment as active agents in their social and urban context.

The opportunity for the project inquiry was found in collaboration with a children center in the outskirts of Bari (Italy), a frontrunner of the Urban civic networks project aimed at promoting urban and human regeneration in a neglected context, where the sense of powerlessness over positive transformations is handed down to children.

A research through design approach was utilized to achieve the project goal: design a tool that enables 6 to 12 years old children to undertake an activation journey to take action towards prosocial challenges meaningful for themselves and their community.

In the initial research cycle, desk research and comparative analysis of 6 different case studies of toolkit and programs were performed to unveil how children's empowerment could be supported by design. The resulting map of ideal empowering strategies allowed to identify some pillars of children activation process to inform the following cycles.

Among those, the community perception, the unlocking of I can mindset and opportunities for action were the object of the research through design interventions,

together with the open endedness of the activation process disclosed along with the two iterations. The insights collected converged into children's intuitive, creative activation journey, including gaps, enablers, and needs they experienced along it. They also contributed to enriching the requirements list for the tool's design.

During the ideation the leading research outcomes were embodied in the final tool proposal "Il Priscio", activities set for young positive change-makers, that propose them a child-led activation through 5 main steps: raising I can, finding relevance in opportunities for change, becoming protagonists, powers-driven ideation and practicing courage.

The tool suitcase board contains 14 activity cards with open-ended steps to perform and additional materials to support the experience, such as a platform to practice courage by sharing the results of the powers-driven ideation.

The partial test of the tool in the context of the Urban civic network, set up as a third design intervention, acted as a launchpad for children self-activation. Although the implementation in the context of civic associations is envisioned, the tool opened up further research direction about children's self-esteem, the communicative potential of their imaginative interventions, constructive communication with policymakers, and the addition of levels of ambiguity to the tool journey.

Table of contents

1 Inspiration and Introduction

- 1.1 Background:how did the project start?.....8
- 1.2 The project scope and relevance.....10
- 1.3 The projectcontext.....13
- 1.4 The assignment and the project goal...16
- 1.5 Project approach and research questions.....18
- 1.6 Project structure.....19

2 Case study toolkit to make children protagonist

- 2.1 The goal and research questions.....24
- 2.2 The method (desk research + interview).....25
- 2.3 Answering the research question 1: case study cards.....27
- 2.4 Answering theresearch question 2: map of ideal empowering strategy.....42

Requirements V0

3 Design intervention 1

- 3.1 Goal and research questions.....54
- 3.2 Designing the intervention and design questions.....55
- 3.3 Research set up.....57
- 3.4 Answering the research and design questions.....60

4 Design intervention 2

- 4.1 Goal of the intervention and research questions.....68
- 4.2 Designing the intervention.....70
- 4.3 Research set up.....73
- 4.4 The second design intervention.....76
- 4.5 Results: answering the research questions.....83

Requirements V1

5 The final toolkit

- 5.1 Ideation and ideation directions.....100
- 5.2 Conceptualization.....104
- 5.3 The toolkit: components and experience.....108

6 Design intervention 3: testing the toolkit

- 6.1 Goal of the test.....124
- 6.2 Test set up.....126
- 6.3 Results: Ansewring the reserch question.....134

Requirements Assessment

7 Conclusions

- 7.1 Intro.....156
- 7.2 Limitation of research and testing.....157
- 7.3 Reccomendation for implementation.159
- 7.4 Reccomendation for redesign.....161
- 7.5 Reccomendation for further research.....163

- REFERENCES.....166

1

Inspiration and

Introduction

1.1. Background: how did the project start?

PICTURE 1.1: Picture taken during the first exploration of the IV RCU(Bari)



I am a dreamer! As such, I know how important dreams are in shaping opportunities first and change later.

By dreaming big and following them, I went through the rollercoaster of this master in design for interaction, which totally reversed my conception of design and made me fully embrace its transformative potential. I intuitively build up my interests and experiences at the intersection of design for children flourishing, design for social innovation, and participatory practices. When starting this graduation project, I tried putting those pieces together in the context of an urban scenario in constant transformation, which has always fascinated me.

If I have to say how this project started, I would say over a coffee in a bar at the periphery of a south Italian city. There I met for the first time Carmen, the communication manager of a social innovation project in that context, who told me about the beauty and challenges of carrying out a collaborative project for social aggregation and human regeneration in the suburbs of Bari.

“Youngsters have no dreams in this outskirts”

Carmen revealed me.

And I could recognize in her words the sense of powerlessness around the ideas of future and change she was observing daily in the eyes of children and grown-ups.

Even though it may seem irrelevant compared to the practical problems of unemployment and micro-criminality, this fragile context regularly faces, having a dream becomes an essential need when aiming at regeneration. A dream represents the ability to imagine a positive even ideal change from the existing condition. It serves as a push to exit a predetermined perspective of reality and start acting. Therefore, it is necessary to disrupt with the current practice of adults handing on to children their passive and static mindset and start saving dreams where they are more alive, such as in children's minds by helping them turn dreams into concrete actions, into small changes.

Carmen was still talking... and as a dreamer, I was already trying to frame this inspiration into a graduation project with the ultimate ambition to save dreams.

PICTURE 1.2: “la casa di Mary Poppins”



1.2 The project scope and relevance

“Children are playful and constructive disorganizers of the world: they can disrupt routines, rethink rules, and interpret spaces and experiences in new ways. While “playing” this role, they can teach adults to imagine, test, and control new meanings that transcend and bypass entrenched conventions”

(Hamers, D. et al., 2017)

In a society turning into a huge experimental platform to tackle its wicked problems, with their innate disruptive creativity and their role as moral actors (Bray and Gooskens, 2006 in Nordenfors M., 2012, p. 65), children could play an active role in creating innovative solutions and eventually lead to more profound social changes (Stern, 2006 in Nordenfors M., 2012, p.18).

Especially in social and urban contexts where public administration fails to accomplish its mission, innovation often arises from the encounter of bottom-up grassroots initiatives and top-down financial support. In those cases, on the one hand, children, unlike adults, are not in the position to enter the collective spheres of urban activism and run the risk to be invisible in the decision making processes. On the other hand bottom-up practices represent valuable access to public debate for marginalized citizens, who are excluded from formal structures for participation in democracy (Sassen, 2005 in Vaneycken A., 2020, p.33).

Despite the approval of the UN Convention on the Rights of the Child and the recognition of the children’s right to express their own views on issues that concern them (Unicef, 1989), children participation in society has become pervasive rhetoric in the global political agenda, which has revealed hard to convert into a day to day

practice.

Without access to vote, media, courts, environmental groups and the related processes which are integral to the exercise of democratic rights, children and their experience remain hidden from view, and they are in consequence, denied effective recognition as citizens (Landsdown, 2001, quoted in Davis & Hill, 2006).

Few arenas and participatory design practices are the only ways children can have a say in society’s development and take part in democracy. Typically established top-down by the institutions, those arenas are defined by unbalance of power relationships between children and adults, who don’t acknowledge children’s competence as citizens and set agendas and conditions of the participation on their own terms. Participatory design practices open up more genuine opportunities for children’s involvement, which better aligns with their curious, playful, and creative attitude. However, children’s empowerment and emancipation remain concerns of participatory design with children as they entail the methodological challenges of reaching higher and more active roles on the participation ladder (Hart R., 1992) and the knowledge of unattended topics in children’s education such as creative design and agency (Iivari & Kinnula, 2018).

Enabling children to claim their right of expression on social matters and their role as active agents in the solution of wicked problems means setting up a continuous cycle of reciprocal benefits for both children and society. The first ones flourish as persons and citizens by strengthening and practicing their skills, values, and attitude in the social and urban playground society offers. In return, the latter receive creative proposals of change, while training its present and future citizens to a long-lasting civic engagement and democratic principles. In order to initiate such a reciprocal empowering loop, it is urgent to reconsider the bottom-up access point for children’s participation in society and to overcome the obstacles of participatory design by offering spaces for children to unleash their

natural disruptive creative talents and develop awareness on their potential as active initiator of change.

By placing its inquiry at the intersection between design for children's flourishing and design for participatory city-making, with the present graduation project, I take the opportunity to turn the rhetoric about children's right to express their disruptive creative views and competencies into hands-on practices. Specifically, I explore how children can participate in society without a top-down involvement and how they can be supported in the process of empowerment as active agents in their social and urban context.

1.3 The project context

By moving its inquiry into the scope explained above, the current research and design project requires a specific social and urban context to explore and develop solutions for children's empowerment in it.

Specifically, the choice of the project context addressed the landscapes of Italian bottom-up citizens' initiatives in fragile areas such as city outskirts. In these spaces considered neglected for years, the marginality has not only increased cultural and economic poverty, illegality and lack of social integration, but also fostered dynamics of social and political exclusion, affecting especially marginal citizens such as children. Nowadays, citizens collectives are trying to achieve the systemic, long-lasting transformation these places seek, with diffuse practice-based innovation initiatives. Children remain mainly recipients of their services without decision-making power over the overall change the initiatives aim to. Moreover, most of the local formal and informal education aims at contrasting cultural poverty without giving children the chance to develop hands-on competencies in design and agency that could trigger their current and future social participation. In line with the considerations included at point 1.2, these contexts are considered appropriate to set up the project. After preliminary research, a specific collaboration has been arranged with one of the Reti civiche urbane, Urban Civic Networks, a social innovation project in the municipality of Bari.

Collaborating with an Urban Civic Network

Urban civic networks are 12 umbrella organizations of local entities active in the 12 districts of Bari's municipality, a medium-sized city in Italy's Apulia region. (<https://www.bariinnovazione sociale.it/reti-civiche-urbane/> for more information)

They were established top-down by bringing together in the same association the bottom-up effort of third sector associations, territorial committees, parishes, businesses, and schools, engaged in the same neighborhood. UCNs goal is to manage a consistent and multidimensional program of bottom-up initiatives, in order to achieve community activation and urban and human regeneration in a neglected context dominated by a sense of powerlessness over the change and the future.

Throughout this project, I specifically collaborated with the frontrunner association of the UCN based on the territory of the 4th district (including the neighborhood of Ceglie del Campo, Carbonara, Loseto, and Santa Rita) as their civic mission combines with a childcare focus. On the one hand, the aim of the program, OIKIA, currently carried out by the UCN, aligns with my project intention. Their goal is to initiate a practice of active participation for citizens of all ages and encompasses the twofold purpose to re-establish citizens' ownership with their local public spaces and build up skills to plan a collective future. On the other hand, children aged 6 to 12, who are the main target addressed with UCN current practices and activities, are also the main stakeholders to focus on within the scope of the present project.

Children role in the UCN

To narrow down the above-mentioned scope toward a more specific assignment and design goal, the children's role and current practices of the UCN are considered relevant and are described below.

In the 4th district neighborhood context, children are still exposed to socio-cultural difficulties, juvenile delinquency, and educational poverty. Therefore besides the goals implied in the OIKIA program, the UCN child care action tackles those urgent issues by offering cultural and artistic entertainment. This mission, together with the support of the local community, has led to the set up of "La casetta di Mary Poppins", "Mary Poppins' little house" as a safe space for the gathering of

children between the age of 6 and 12 and for their creativity and sense of community development. A varied group of children from the four neighborhoods attend the center regularly three afternoons per week after the school. Here they take part in different laboratories, which range from hands-on crafting and creative activities based on Montessori principles to pet therapy and non-formal education on relevant topics such as sustainability and children's rights. Children's involvement in projects for their community has been limited to contributions in adult initiated installations through the creation of artifacts, such as Christmas decorations for their square. Despite the goal of citizens activation, children remain passive actors in this context and don't have a say in the urban and human regeneration the outskirts is going through.

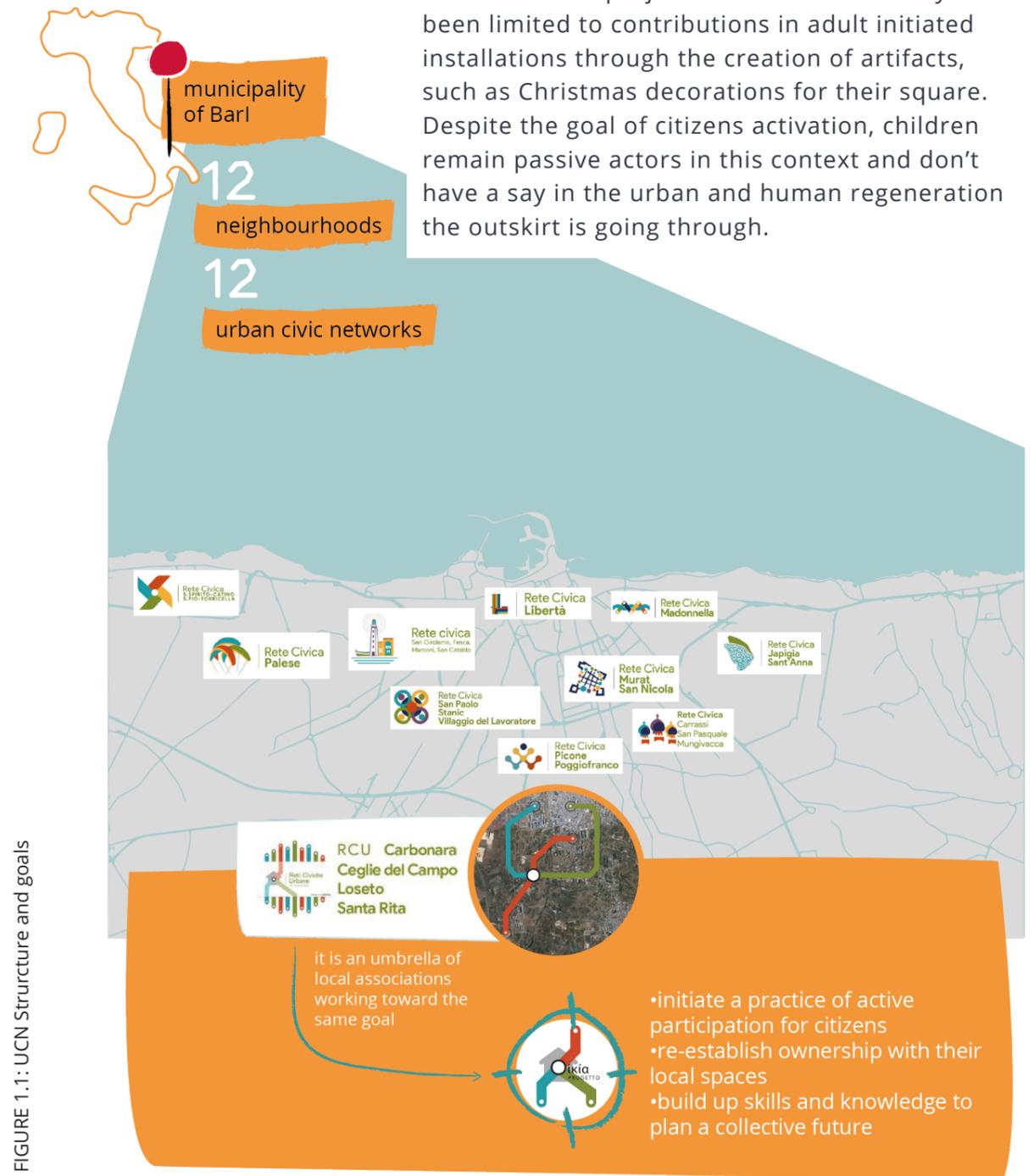


FIGURE 1.1: UCN Structure and goals

1.4 The assignment and the project goal

Following the intentions defined in the project scope, the context described in the previous paragraphs open up a valuable opportunity space to frame the challenge of increasing children participation in society through their empowerment into the following assignment:

Design a tool that enables 6 to 12 years old children to undertake an activation journey to take action towards prosocial challenges meaningful for themselves and their community

The opportunity space identified in the context of the UCN children association is twofold.

On the one hand, during the crafting and artistic laboratories, children are supported in the development of manipulative skills and artistic mindset, but miss chances to realize the potential of their imagination and creativity as a form of expression of their influence in their community. Moreover, without design-driven and project-based creativity based on real-life problem solving, children lack the opportunity to unleash their skills and develop competencies such as design thinking and agency. In the long term, this could represent an opportunity to imagine a different future for themselves and their surroundings.

On the other hand, adding hands-on design-related competencies to UCN current laboratories offers would be the first step to achieve

their goal, enhancing citizen activation in the neighborhood, starting from the youngest ones, and building up the skills for a collective future. Furthermore, children's involvement could start a chain reaction for the engagement of other members of the community, such as their family, and bring a fresh perspective on how to carry out the ongoing social and urban transformation.

Therefore the tool is expected to bring children from their current condition of being passive citizens practicing creativity for entertainment purposes to playing the role of active agents in the community using creativity to identify opportunities for change and create a local impact. In order to achieve this goal, the tool will offer the procedure and the resources that children will be willing to undertake and use to trigger their own initiative to take action. Tool use should produce not only the physical outcomes created by children as solutions for the meaningful challenges identified and tackled but also the intangible learnings acquired throughout the activation journey.

1.5 Project approach and research questions

The assignment's nature entails the design of a procedure of children's activation, which includes a combination of interactions and factors currently absent in the context and the target group experience, thus challenging to observe and grasp as research preliminary to the design. This specificity makes it appropriate to carry out the project combining the Research Through Design (RTD) approach (Stappers & Giaccardi, 2017) with an iterative one. RTD moves from the theory that the designing act of creating prototypes is in itself a potential generator of knowledge (Stappers, 2007). Thus, throughout the project, different iterations of design artifacts and interventions are introduced into the context to provoke activation and make observable and explicit children's responses and behaviors, impossible to gather otherwise.

The choice of such a methodology allows splitting the project goal mentioned in the assignment into a research question and a design question, which will guide the development of the knowledge and the solution, respectively.



Research and Design questions

RQ: how can children activate themselves to identify meaningful prosocial challenges for themselves and their community and take action towards them?

DQ: how can a tool support children throughout this activation journey?

1.6 Project structure

In order to achieve the goal by answering the questions formulated, the project has been structured in 3 cycles, whose main activities gradually move from research to design across time, as shown in figure 1.2.

Cycle 1 | empowering through design

After a preliminary exploration of the scope and context summarized in the introduction above, the project begins in cycle 1 with a research phase aimed at shedding the known and building up a background knowledge about the existing tools for children empowerment through design. This is considered relevant to define a scope for designing in view of the final solution by discovering practices and set of resources currently available to involve children in a design process. With a combination of desk research and expert interviews, this phase has brought to the collection of a number of case studies to be compared to identify common patterns in the approaches and produce an ideal map of empowering strategies for children practicing design. The main principles contained in the map informed the following research through design phase by being turned into tangible design interventions to be tested in the context.

Cycle 2 | unlocking "I can" mindset and action for change

Moving from the insights and premises collected in cycle 1, cycle 2 aimed at exploring how a rough open-ended activation process could unlock "I can" mindset and action toward opportunities for change. Specifically, based on an iterative RTD approach described above, two design interventions were designed in line with the two main themes underlying the overall project goal: children's perception of community and children's

intuitive, creative process. The first intervention was carried out as an in-person semi-structured session with a group of children. In contrast, the second one consisted of a series of 2 main activities mediated by semi-structured online sessions and followed by individual feedback interviews with children from the context. The interventions were also used as means to dive deeper into the target world by understanding their interests and limitations when asking them to be protagonists of a designerly project. Simultaneously the first contacts with children gave the chance to unveil group dynamics, contextual factors, and specifics of the setting that could inform the following design. The multidimensional nature of the interventions allows gathering research and design data, which will be arranged respectively in 2 types of outcomes: the children's intuitive change-making journey including the enablers provided and the gaps encountered during this creative experience and a list of requirements for the design. Together they were used as the primary inspiration source for the following cycle.

Cycle 3 | designing a toolkit for little changemakers

After ideation and conceptualization, the third cycle is dedicated to the embodiment of the leading research outcomes into a final design proposal and overall experience of use. The tool's prototype is then introduced in the context and used by children in multiple testing sessions aimed at completing the whole tool use experience. In parallel, feedback interviews with educators are carried out in order to perform an evaluation of the tool based on intended use envisioned and the requirements formulated throughout the previous cycles. At the end of the experience, a sample of children participated in a semi-structured interview to provide their own perspective of the experience with the tool and qualitative evaluation on the achievement of the project goal. The cycle's outcomes conclude the report with recommendations for improvements of the design and suggestions about implementation possibilities.

Set up during COVID-19

As described throughout this chapter, the project moves its premises from the scope of activating children as active agents of their community, which found a perfect match and relevance in the context and target group identified as collaborators. However, the outbreak of COVID-19 worldwide significantly limited the physical accessibility to the context and the chances to carry out on-field activities. Therefore the activities proposed, especially in cycle 2 try to contribute to building knowledge for this project while using alternative participants and setups. This is a small note for the reader to motivate some arrangements and decisions taken throughout the cycles.

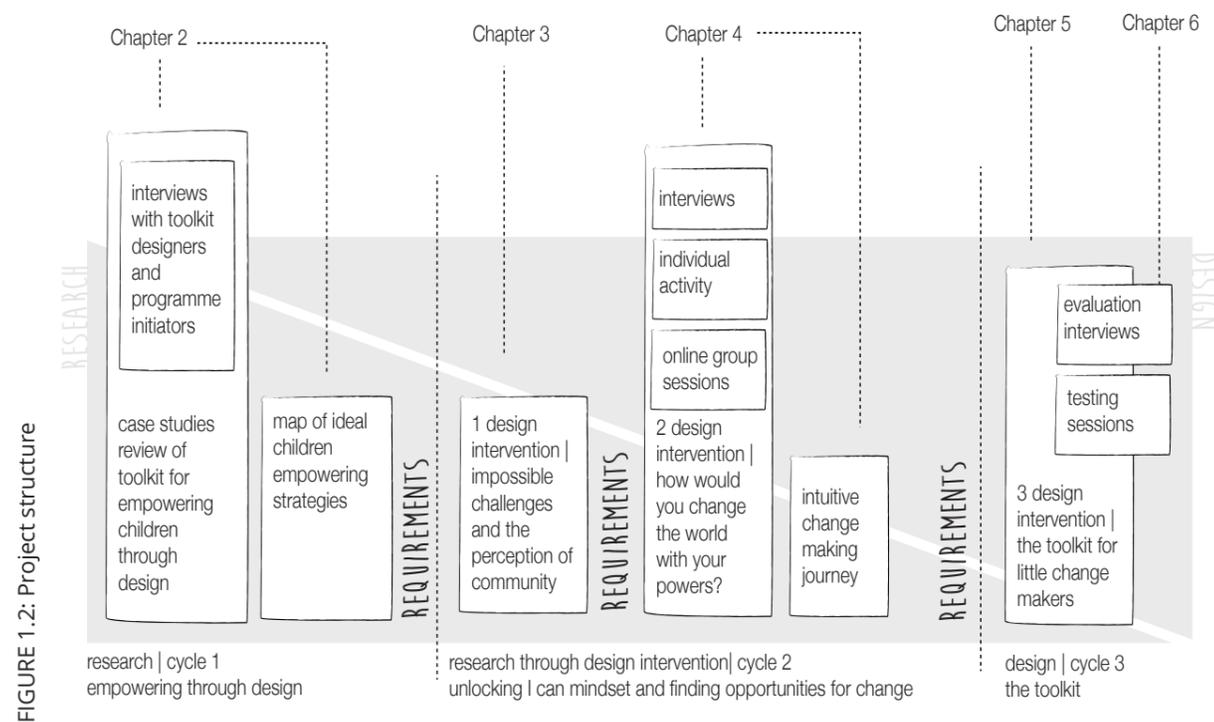


FIGURE 1.2: Project structure

RESEARCH DESIGN research: empowering
children through design

cycle 1

2 Case study toolkit
to make children
protagonist

2.1 The goal and research questions

In line with the project's overall intention to design a toolkit for children's self-activation as change makers, it is considered relevant to perform a review of the toolkits currently available for involving children in design processes as active agents. The review is aimed at understanding which typology of toolkits already exists, how they work, and which elements the toolkits include. Besides offering an overview of the toolkit's features, the review focuses on unveiling the toolkits' approach and the strategies they employ to facilitate children throughout the design process and to empower them through design practice. The role of the children in using the toolkit and their decision making power over the process are considered as relevant aspects for their empowerment. Overall, the review aims at answering the following research questions:



Research questions

RQ1: Which toolkits are currently available to involve children in a design process?

RQ2: Which processes and strategies are employed to facilitate and empower children through design practice?

2.2 The method (desk research + interview)

To answer the mentioned research questions, the review included two main activities performed in parallel: an extensive desk research and interview sessions with toolkits designers.

The desk research started by collecting a range of toolkits for higher levels of children participation in the design process. The selection of toolkits to consider as two criteria drove case studies: the definition of toolkit is stretched to include not only physical kits of instruments, but also broader systems or programs the kits are part of, showing a valuable approach for children's involvement and activation through design the toolkit should elicit an active and direct involvement of children in the activities proposed. Therefore, books, frontal lectures, and cards explaining design thinking methods to children were not considered appropriate case studies After choosing six case studies according to the criteria mentioned above, the desk research went on with the intention of collecting relevant information about their scenario of use, such as their goal and components, the approach they are based on, and the process and activities they elicit.

In parallel, the interview sessions were planned to enlarge my understanding of how the toolkit worked in those scenario, by gathering real-life experiences, strengths and weaknesses of using the toolkit and applying its process. The chance of talking with the toolkits designer was also used to investigate further the links between the approach and the physical aspects of the toolkit and the reasons behind certain design choices. The sessions were set up as informal conversations based on the questions of a script prepared beforehand (script and transcript of the interview can be found in the APPENDIX B).

Both the information collected through desk research and the main quotes/insights from the interviews were summed up in case studies cards and organized in 5 sections dedicated to toolkit goal, components, approach, process, and quotes. The cards were used as starting point for conducting a case studies analysis aimed at identifying positive and negative aspects of each toolkit which were later reported in a new dedicated section of each card in order to keep a complete overview of the toolkit. Explicitly comparing the process section of each case study card, recurring pattern of activities, and strategies to empower children through design were highlighted. Those, together with the toolkits positive aspects, were finally combined into an ideal optimal process to facilitate and empower children through design.

2.3 Answering the research question 1: case studies cards

Toolkit for children are not really for children

When comparing the toolkit cards it is immediately clear that toolkits for children are not actually for children. This means that out of the whole toolkit only few elements such as booklet or cards are given to children directly and in most cases analyzed those elements are not sufficient to fully guide children toward the intended goal and therefore require the mediation of a facilitator. Seen from another perspective, the toolkits for children empowerment through design don't exist in a vacuum but they are part of bigger systems supporting and promoting the same values and intention. The system should include a physical place children attend regularly, a group of emancipators that recognize the relevance of bringing an empowering educational experience to children and a dedicated moment or track in which the experience can take place in a stimulating and unconditioned atmosphere. The multi dimensional format of the toolkits serves to set up those conditions, especially providing the emancipators with the basic knowledge and skills of design processes in order to be able to guide it and pass it on to children.

Learn by design vs change by design

Amongst the toolkits studied 2 main categories can be identified: toolkits to learn by design, aimed at transferring learning goals and educational subjects through design based processes. This way frontal lectures are turned by teachers into small projects based on hand-on activities where children gain learnings by making discoveries and practicing

design skills in parallel. As design skills are developed implicitly and there is often no link with their usefulness and children daily life, children initiative remain limited to the scope of the school assignment and is not instilled as mindset. In the analysis those toolkits are valuable to abstract the principles and the core of design based activities suitable for children toolkits to change by design, aimed at transferring real life problem solving skills and encouraging children to improve their surroundings or community. In this case a full design program is proposed to guide children from identifying a real challenge to implementing the solution. Developing skills related to real life problem solving and creative thinking, the program has the ambition to cultivate children self initiative toward relevant social issues. In the analysis those toolkits are valuable to identify which strategy, processes and activities to unlock children empowerment.

CASE STUDIES CARDS

CASE STUDY 1 ONTWERPEND LEREN IN DE KLAS LEARNING BY DESIGN IN THE CLASS

Developed by Wetenschapsknooppunt TU Delft and Ontwerpbureau Meeple

Website <https://ontwerpenindeklas.nl/>

It is a digital and physical toolkit

GOAL

- give teachers the chance to implement design in their curriculum
- give children the opportunity to acquire and practice 21st century skills such as problem solving and creative thinking

COMPONENTS

website easy to access to check and download ready to go lessons packages and do it yourself design lessons packages

design activity cards with open ended instructions to adapt it to any chosen theme and carry it out.

standard templates to give to children to perform each activity



"When children enter the prototyping phase, they don't see a clear goal, they just start making something and they want to make it pretty! If you ask them why are you making that? They will most surely say either I don't know or because I was asked to."

by design student and researcher developing a prototyping tool to be implemented in Ontwerpend leren in de klas toolkit

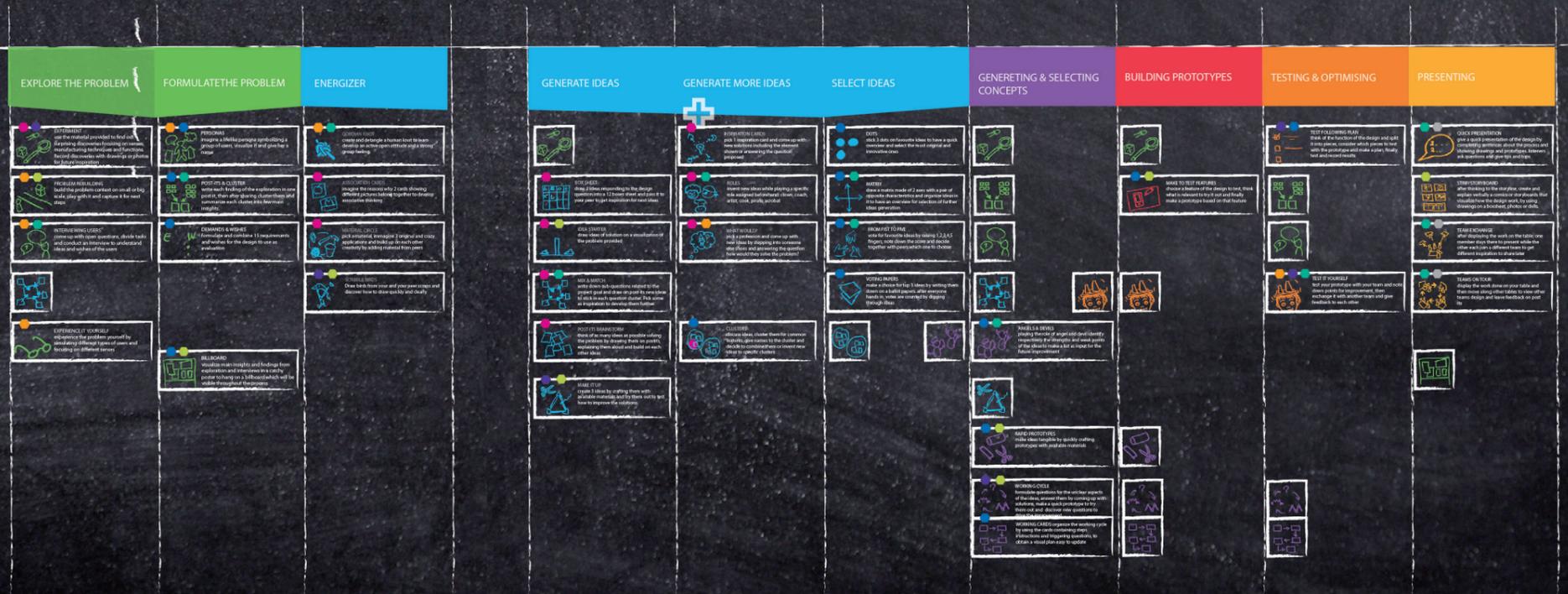
- + The toolkit offers a rich library of techniques that can be used by children to perform standard design steps such as:
 - stimulating the inspiration with visual inputs, materials, senses and different perspective,
 - expressing ideas by visualizing them, building them or acting them out,
 - selecting ideas by clustering and voting or receiving feedbacks.

- + Especially interesting is the use of making in the front-end of the design process as means for finding and understanding the problem

children are led by the educator through a standard process starting from a challenge that doesn't necessarily come from their direct experience or real life, but it is chosen to fit the educational curriculum. This make them develop design skills in an assignment like setting, without creating a bridge with real world issues and therefore stimulating their own initiative.

The tool is addressed mainly to educators and teachers that have to initiate the whole process. children interact with the templates and don't have decision making power over it.

PROCESS



developed by Studio Tast

Website <https://www.studiotast.com/groow>

Groow is a physical toolkit linked to a digital platform

GOAL

- to supports students, teachers and educational innovators from all levels of education in turning life challenging questions into solutions
- to provide knowledge, structure and guidance to plan and undertake a tangible design based learning process

COMPONENTS

different types of e-learning support such as groowtutorials on how to use the toolkit and quick video explanation for each of the design steps or activities proposed on the building blocks.

7 different types of building blocks to build and visualize the desired process to follow:

- 5-steps design blocks
- 40 activities blocks
- 1 avatar
- 1 start and end blocks
- 3 check point blocks
- 8 emotion blocks
- 3 repeat blocks

"it's a tool that you can fully put into your own hands. So for instance, if you have a hammer, you can use a hammer in a dozen ways, because you figure out yourself how to use it best. And that's the same thing with groow! The teacher is still like really a coaching figure that teaches children. When the children get a bit older, you can go a bit deeper, so you can really show them the process and let them figure out how to how to deal with certain activities."

by Jeroen Cleijne, designer and expert of Groow toolkit

- + Color coded blocks supports the open ended structure of the process allowing to build a personalized journey from the problem identification to the solution, by choosing which activities to perform to complete the steps.
- + The tool also help to visualize such a process in order to clearly share the goals and the steps and to establish a common language amongst children and between children and educators or collaborators.
- + Design steps and activities are explained in short catchy videos that can be shown to children as introduction to the activities alternative to a full facilitation

- Being not specifically designed for children, the learning curve before they can start to use the toolkit autonomously is quite high, due to the limited amount of instructions provided and to the need of familiarity with design language and processes.
- The toolkit doesn't include step by step instruction or templates that can support the activities

PROCESS

UNDERSTAND	DISCOVER	MAKE	SHARE
<p>UNDERSTAND</p> <p>Understand blocks that can be used in every step of the process</p> <p>PROBLEM Who, what, how, why and when define your problem, where are you at</p> <p>DEFINE YOUR QUESTIONS and answer with them who, what, how, why and when</p> <p>DETERMINE SUCCESS what and when your performance goals to achieve</p>	<p>DISCOVER</p> <p>RESEARCH Looking for information, pictures, video or audio to help you understand your problem</p> <p>ANALYZE Looking on 1 aspect of the time, space, budget, or other constraints to see what is possible</p> <p>INTO THE FUTURE How can you use the problem to improve and help people</p> <p>GET TO KNOW YOUR TARGET GROUP What are their needs and how can you help them to solve their problem</p> <p>INTERVIEW What are their thoughts and associations with the problem and how can you help them to solve their problem</p> <p>RESEARCH What are the different ways to solve the problem</p>	<p>MAKE</p> <p>PROTOTYPING How can you use the problem to improve and help people</p> <p>TESTING How can you use the problem to improve and help people</p> <p>REFLECT How can you use the problem to improve and help people</p> <p>IMPROVE How can you use the problem to improve and help people</p> <p>SHARE How can you use the problem to improve and help people</p>	<p>SHARE</p> <p>PRESENTATION How can you use the problem to improve and help people</p> <p>EVALUATION How can you use the problem to improve and help people</p> <p>REFLECTION How can you use the problem to improve and help people</p> <p>CONCLUSION How can you use the problem to improve and help people</p>



CASE STUDY 4 ONTWERPEND LEREN IN DE KLAS LEARNING BY DESIGN IN THE CLASS

developed by D.hive non-profit organization

Website <https://dhivelabs.org/> (under development)

It is a curriculum for school, after school and community centre children that can be declined in 1 day Sprint! workshop, 10 days Solvel! workshop or in a full 3 years program

GOAL

- unleashing their creative potential and enabling them to create high impact solutions for contextual social challenges

COMPONENTS

online platform for educators to get access to multiple material to perform the curriculum

visual-guide of social rural design, containing the overall approach, process and activities to co-design sustainable livelihood options for the community with children

activity cards to guide facilitators throughout the workshops through the process and have them record their progress and discoveries

design booklet or workbook to provide guidance children throughout the process and have them record their progress and discoveries

“So children have this mindset of jugaad, it is an hindi word that means frugal innovation, but it means much more than that. It means to do more with less resources! They are obviously having a very high amount of creativity, but it's just that they don't have a platform to express it. We see that there is a value in not conditioning, because then they develop confidence in themselves. But we are still not having clarity of how a child-led community change can be adopted in an urban setting, as in the rural setting, the problems are quite evident and the interventions can actually make a big difference.”

by Shreyas Prakash, d.Hive founder and director

- + The curriculum is based on Children Led Participatory Design (CLPD) framework which actively engage children on the entire design process through 3 phases:
 - Unconditioning phase to ignite a spark of curiosity and empathy about the real world they are surrounded of; to boost creative confidence and to initiate an equal team collaboration
 - Critical thinking phase to instill the “I can attitude” while encouraging the practice of learning and expressing by tinkering-
 - Design thinking phase to move from the real world challenge identification to the implementation of the solution in the community
- + Overcoming fun and impossible challenges, recognizing owns and team capabilities, increasing technical skills and establishing relationship with the community are the main pillars of the program to nurture children I can mindset and accompany them in a process to identify the challenge they want to solve and implement the solution in the community.

The booklet provided to carry out or let children plan the activities is not exhaustive, so the facilitator plays a quite dominant role especially in the initial phases of the process. The storytelling of the booklet refers to superheroes and challenges which may not fit every child interests

The full program resulting in children developing their own initiative is a long term process



developed by Design for Change

Website <https://www.dfcworld.com/SITE>

GOAL

It is a selection of educational materials to be used at school and at home by teachers, parents and children

- to spread the belief that every child has the potential to transform the world
- create opportunities for children to lead the change

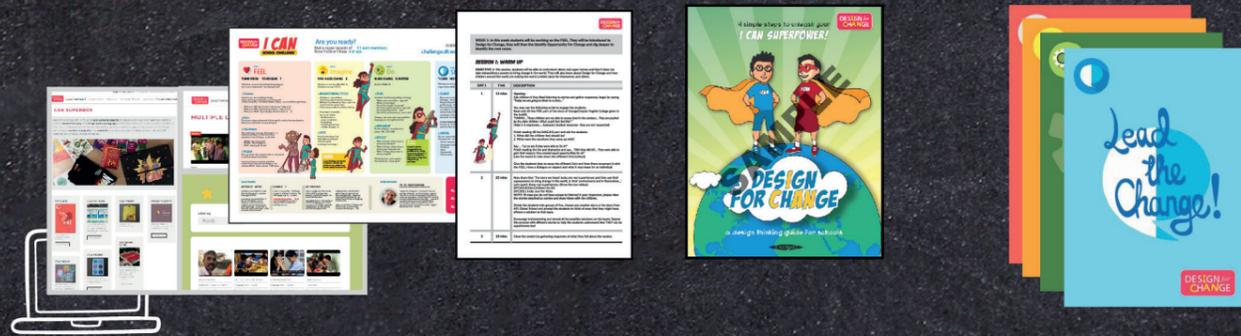
COMPONENTS

Design for change website gives access to a wide range of digital and physical resources:

design thinking guide and manuals with weekly or monthly lessons plans, posters and worksheets for both children and teacher to carry out short or long change projects

comic books and an online database of video stories to start with a change project or to bring real world challenges and children solutions from all over the world into the classroom

FIDS cards, a set of visual inspirational cards that act as a triggers for the main phases of the change project: Observation (Feel), Brainstorming (Imagine), Planning (Do) and Sharing (Share)



- + The whole process is aimed at developing children I can mindset and is organized into few steps and activities which use a very simple and straightforward language:
 - FEEL- empathy, to build observation, listening and understanding multiple perspectives
 - MAGINE- ethics, to grow the head, build Critical Thinking and Creativity
 - DO, to use the hands collaborative action and agency and help children plan their act of change
 - SHARE, to inspire hope and allow children to think of different ways to spread their story and inspire others

- + the booklet and visual cards use metaphors and visual triggers which can be freely interpreted by children when starting a new step

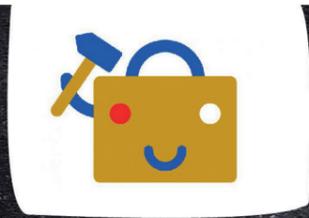
- + I can mindset is initiated by sharing a peer to peer stories of change and then reinforced by project based practices

- The storytelling of the activities is quite dominant and suggest children specific roles to play throughout the process, such as superheroes, explorer...

- In spite of the instructions provided in the booklet and on the cards, the role and the encouragement of the facilitator are essential to complete the project

PROCESS





CASE STUDY 6 KLOOIKOFFERS (TINKERBOXES)

developed by Stichting Lekkeramenklooien

Website: <https://klooikoffers.nl/>
<https://lekkersamenklooien.nl/category/klooikoffers/>

It is a lending system of physical kits and educational material

GOAL

- bridging the gap amongst the making world, parents, children and school
- provide real life tools and know-how as encouragement and trigger for young and grown up to mess around and make together

COMPONENTS

The kits system include 7 types of cardboard suitcases to introduce specific making tools such as wire stripper, glue gun, soldering iron, sharp knives, and their additional components

mini courses skills cards with easy step by step instructions to use the tool

a making diary, where everyone who mess up with that suitcase has to report his adventure as inspiration for next lender

concept of self-scan tool that helps makers formulate their need in free making process and choose what resource to pick from the display table of inspiration, knowledge, skills and process



- + The open ended unstructured process allow children to choose their path toward the solution by helping them pick the input they need at each step:
 - starting as designers with a problem
 - starting as an artist with an inspirational images or stories
 - starting as an engineer with know-how

- + The use of the toolkit totally depends on children initiative as they have to lend it from the school or educational institution themselves and they establish a connection with peers by exchanging their making experience.

- The scope of the tool is narrowed to making and doesn't aim at triggering real-life problem solving, so standard problem are offered as input in the form of pictures

PROCESS

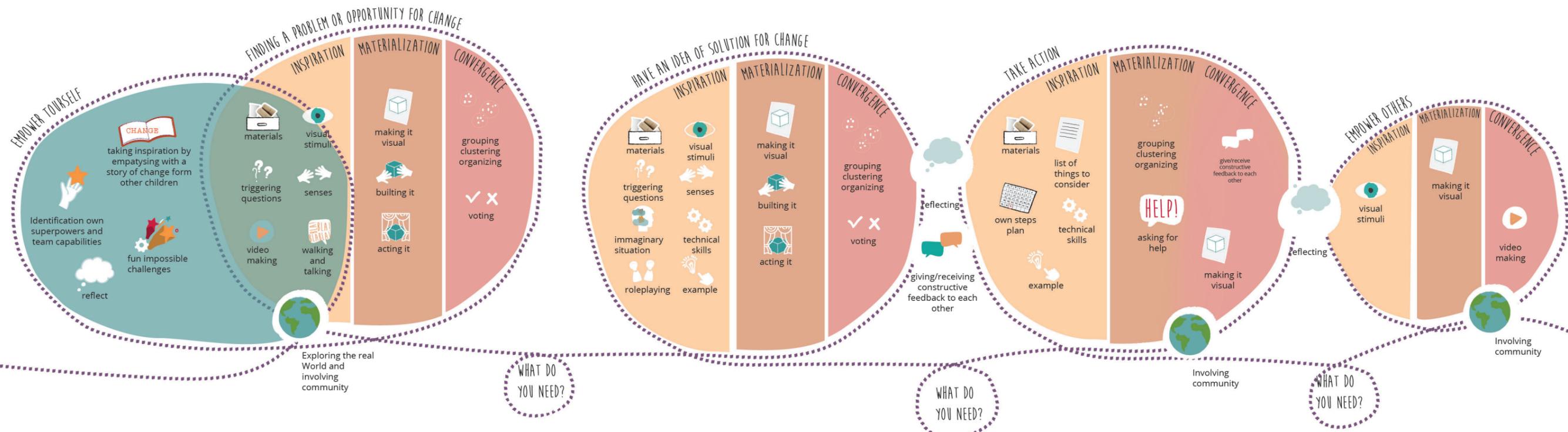


2.4 Answering the research question 2: map of ideal empowering strategies

The ideal process for children involved in design is an empowering cycle made of 5 steps: the first one is mainly aimed at building up the I can mindset, which is essential to help children recognize their ability to impact the real world and find their own intrinsic motivation to bring change. Training this empowering attitude should be both a reflective and pleasant activity, which could be performed by visualizing kids superpowers and empathizing with the inspiring experience of peers who overcome real life challenges. The strategy of overcoming impossible but fun small challenges could be effective when directly experienced in a nutshell, too, proving to children they can do it. This way they intuitively train some technical skills useful later on along the process. To be fully effective, this initial step should already include some contacts with the

real world or community, which could be the perfect set up for overcoming some small fun, and impossible challenges or getting inspired. the following 3 phases are respectively aimed at finding a problem or opportunity for change, finding a solution, and taking action. All those phases share the same structure of substeps: initially inspiration is needed to start performing the step and to start reflecting, secondly, the ideas will be turned into something tangible, then either a selection, a reflection, or external feedback would be necessary to proceed to the next phase. While the substeps structure is similar, the sources of inspiration vary, ranging from an explorative walk in the first phase to the quest for additional technical skills in the last one. The last step closes the cycle of empowerment by encouraging children to share their experience and their solution for bringing change with their peers and community, feeling proud of their action, sending a message to the outside world, and inspiring other children to start a project. Peer-to-peer communication could be a successful strategy to instil the belief that every child has the ability to bring change and suggest a way to do it which they recognize feasible because it has been chosen and carried out by other children.

FIGURE 2.1: The answer of RQ2



Open endedness of the process

Although the five-step structure, the optimal process for children empowerment, is not intended to be rigid and imposed top-down to children, rather it should adapt to their creative needs. Therefore, moving from one phase to the other and amongst the substeps of the same phase could be performed by questioning what children need to stimulate their creativity further and provide the right input required. This technique builds upon children empowerment by giving them decision making over the process and allowing them to choose the right incentive to comply with their initial motivation and goal.

Community involvement

One element that significantly contributes to support and increase children I can mindset is the community's involvement in the development of children's idea for change. This brings children to root their initiative into reality, make the change tangible, and see the positive effects of the change they designed has in the chosen community or environment. It is therefore, important to partner with the community along the process in almost all phases of the empowering cycle, find inspiration, ask for help when building something big, and finally implement the solution and show off and spread the results.

Requirements V0

Based on the case studies review and analysis, an early list of requirements is formulated to guide the research through design cycle and inform the design of the tool. The list will be further updated and specified in line with the insights from the following cycles:

Change by design

The tool should be conceived as a change by design tool :

R1 the tool should make use of design techniques to encourage problem-solving and solution ideation aimed at making a change related to prosocial issues meaningful for children and surrounding them.

Empowering journey

The tool should support children in their self-activation journey, specifically in:

R2 building up children I can mindset ;

R3 giving them decision making over the identification of the challenge and the action to take;

R4 being actively involved in the community.

Child-led

The tool should facilitate a child-led creative process, meaning that :

R5 the tool should leave the creative process and activities open-ended enough for children to express freely, without imposing predefined roles;

R6 the tool should address children directly with a language suitable for them to reduce the power relationship and competence gap with adults;

R7 the tool should allow children to go through the creative process without excessive conditioning from adults.

RESEARCH DESIGN
cycle 2

research through design
unlocking I can mindset and
find opportunities for change

3

Design intervention 1:
impossible challenges
and community
perception

3.1 Goal of the intervention and research questions

In line with the requirements drawn after the research cycle, the first design intervention was built around the two main pillars of the empowering journey: the build-up of the “I can mindset” and the relationship with the community. Specifically, the “I can mindset” serves as a starting point for the activation journey. While investigating the concept of community from children perspective is considered relevant as it could represent not only the scope for their action and a trigger for the identification of relevant prosocial challenges to act upon, but also the source, nurturing their sense of accomplishment and feeding the empowering cycle. Following those premises, the design intervention will address the following research questions:



Research questions

RQ1:How to unlock I can mindset?

RQ2:How do children perceive their community?

3.2 Designing the intervention and design questions

Moving from the research questions above, the intervention was ideated as two main activities to be performed within a creative session. The first one was inspired by one of the strategies currently used to arise I can mindset unveiled during the case studies analysis. It consists of letting children deal with fun impossible challenges to stimulate out of the box problem solving and the awareness that “if impossible challenges can be solved, everything it is possible!”. This principle was turned into a playful hands-on task: building the highest tower out of balloons.

In order to collect insights about children, perceptions of community, the second part of the session was designed entirely around the topic, with a focus on the social and spatial references that the meaning of community entails. Initially, a generative portrait of each child’s community could support them in expressing their perceptions about the social system surrounding them. The relationships amongst their social spheres will be unveiled during the following presentation moment aimed at physically weaving a relationship net amongst the children to highlight the connections between the communities drawn. Finally, the spatial connotations of the whole community children belong to is made explicit through the task of rebuilding their 3D community map with LEGO.

Beyond the gathering of knowledge answering the research questions, the intervention was designed to study how some elements of the design intervention itself could contribute to the final goal of children’s self-activation toward meaningful prosocial challenges.

Specifically, the tasks are designed to be as open-ended as possible by communicating children the general assignment without specific instructions on how to perform it and therefore leave more space for children's free expression. The intention is also to reduce conditioning children with adult perspective, from here derives the choice of avoiding explaining children any definition of community.

Moreover, in view of the overall project goal, it will be considered if the main activities proposed to elicit activation, respectively, the first one in the form of rising "I can mindset", while the second as a trigger for enhancing a desire of change.

Consequently, the design intervention has been designed to answer also the following design questions:

3.3 Research set up

Recruitment

The impossibility of carrying out the intervention in the intended context due to the Covid-19 outbreak required to arrange an alternative setup, showing affinities with the UCN childcare association, such as the attendance of children aged between 6 and 12 and an informal education environment. A call for participants flyer (which can be found in APPENDIX D), showing the overall intervention goal and a rough plan, was shared digitally with teachers and educators from international schools and after schools in the Netherlands, thanks to the support of the supervisory team and Italy. The nationality of the children is not considered a discriminating factor for the current research, moreover, the rich background of children from an international school could add a valuable perspective to the topic. Finally, after multiple calls and a personal meeting, a new collaboration was set up with the after school care "True colors" of the International school Delft.

Participants, roles, and context

The intervention was performed over a time span of 2 hours of a quiet afternoon in the spaces of the afterschool. Eight children aged 7 to 10 years old participated in the activities ((in a visual or removed). Specifically, 4 of them are seven years old, 2 are nine years old and the remaining two are 8 and 10 years old respectively). Besides the author, as facilitator of the session, the educator and another design student were present in the session. The educator was there as a reference figure addressing questions from the children and dealing with the practicalities of the after school, such as organizing the snack. At the same time, the design student had the role of taking care of the data collection, by taking pictures of the key



Design questions

DQ1:How do solving fun impossible challenges arise "I can mindset"?

DQ2:How does reflecting over prompt community children to take action?

DQ3:How do open-ended activities elicit activation?



8 Children from the after school care

moments and moving recording devices along with the change of activities location. In order to properly fit the activities interventions in the current context and plan the set up presented, a visit and observation session were conducted a few days before the design intervention. Beyond helping to choose a quiet day with a smaller number of participants over busier days, the visit helped distribute the activities around the central break, have an idea of the facilities available in terms of space and materials, and particularly spot some children's habits dynamics. It is noteworthy that children are not used to solving small issues or conflict they could face throughout their free activities, rather, they are encouraged to find a solution by using rock, paper, scissors. A more detailed description of the observation can be found in the APPENDIX E.

Intervention activities and materials

The ideation led by the research and design questions converges in the following session, whose activities journey is illustrated in TABLE 3.1.

Data collection methods

To collect data throughout the session, different ways were adopted, which are listed below: observation+recording: children's reactions to the intervention proposed and the contents they created in response were carefully observed. Due to the specific nature of the session with children and the impossibility of taking notes simultaneously, all impressions collected by the facilitator and her design student colleague were voice recorded immediately after the end of the session. The audio was used as a starting point for the analysis later on final reflection. After the session, children are guided through a small reflection moment by questions formulated by the facilitator aimed at justifying specific behaviors and comments noticed during the session. Video and audio recording: additionally, the

different activities were video and audio recorded. The videotape was used to shoot the overall situation of the activity from a less intrusive distance. At the same time, the audio device was placed closer to participants to collect their quotes. Fotos were used to capture children artifacts.

activity	what	aim	material
introduction	introducing myself and the video-girl to children, explaining who we are and what we are we going to do together	getting to know each other and explaining the goal of the activity	
energizer: build the highest balloons tower	after dividing the group in 2 teams, explain the challenge of making the highest tower out of balloons in a limited time. Make sure that everyone understood the task, distribute balloons and set a timer.	explore how children deal with fun impossible challenge as empowering strategy	many balloons, pump
drawing your community	ask children to take colours and all the stationary to make a drawing and to find a cozy spot. Once everyone is set, distribute the templates and ask them to make a drawing of their community. If needed suggest them to to start by personalizing the icon in the middle and think of the community that surrounds them	explore how children perceive community as social system and who they consider part of their circle of action	template with task and small figure in the middle
presentation and weaving relationships net	ask every child to share his/her drawing with the group and look for connections in each other communities. facilitate the conversation with a ball of wool, which can be passed unrolling the thread to visualize the connections	prepare children for the next activity by visualizing connections amongst them and their community	ball of wool
BREAK			
building our 3D community map	take LEGOs and build all together your community map	Explore how children perceive spatial references of their community and if this trigger desire of change	LEGOs
presentation and reflection	present all together what you have made	explore how the act of re-building it make them reflect on their power over it	

TABLE 3.1: Plan of the session

3.4 Answering the research and design questions

All the materials created during the session, videos, pictures, and audio recordings were analyzed to recognize common patterns useful to answer the research and design questions formulated. The diversity of data collection sources was reconstructed into a written journal of the session, activity per activity, which will help to contextualize and abstract the insights. The full version of the design intervention journal can be found in the APPENDIX F.

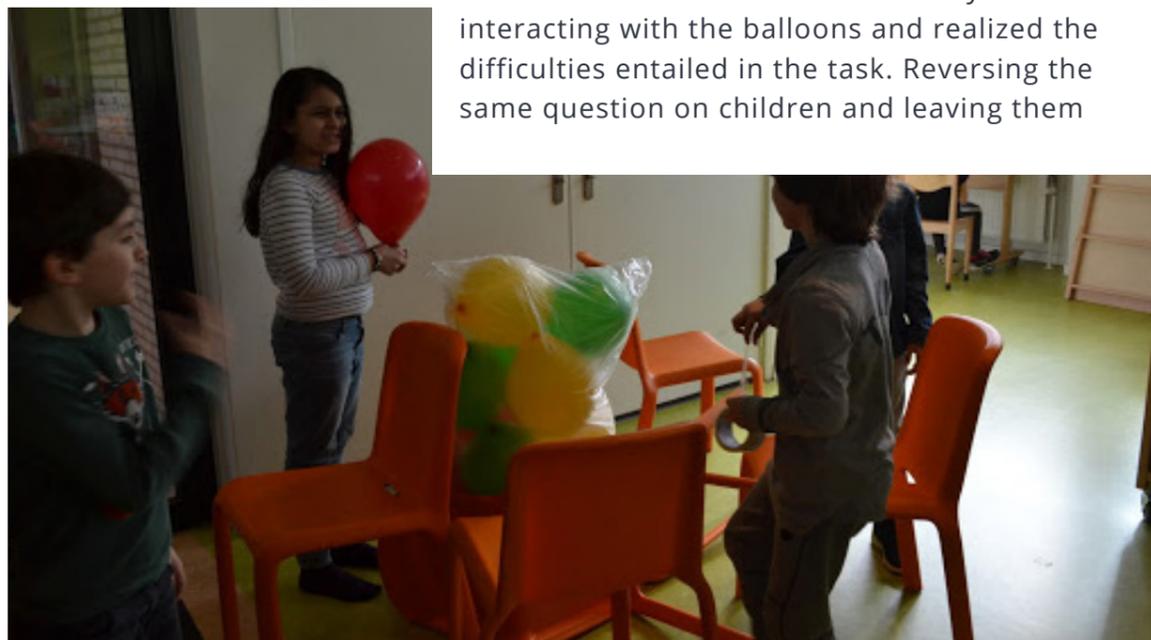
RQ1 How to unlock I can mindset?

DQ1 How do solving fun impossible challenge arise I can mindset?

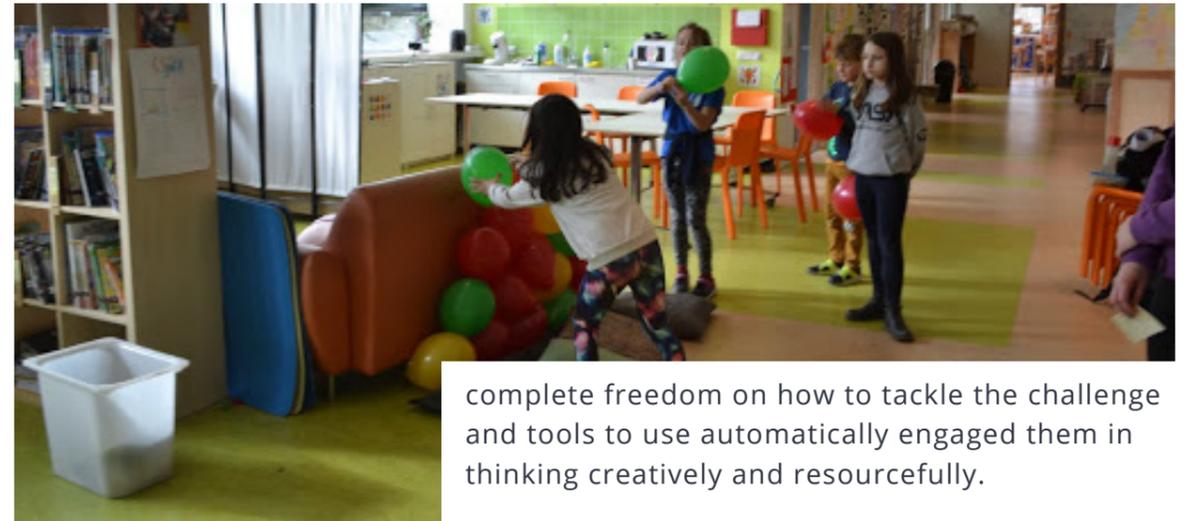
Even though during the preparation observation, a kid mentioned he didn't like challenges, the playful impossible challenge is taken up with much enthusiasm by all the participants. Such enthusiasm and the time pressure of the competition set up helped overcome the initial uncertainty of performing the task

"How do we do it? what can we use?"

A few children were asked when they started interacting with the balloons and realized the difficulties entailed in the task. Reversing the same question on children and leaving them



PICTURE 3.1: A group building the tower



PICTURE 3.2: A group building the tower

complete freedom on how to tackle the challenge and tools to use automatically engaged them in thinking creatively and resourcefully.

Both teams came up with out of the box ideas to make the balloons tower.

On the one hand, one team started to pile up balloons against the wall. They then decided to create scaffoldings with the legs of chairs, place a big plastic bag in the middle, fill it in with balloons, and finally use some tape to secure the whole structure.

On the other hand, the second team got inspired by the techniques from their opponents and started creating a balloons triangle over the sofa back.

When seeing their ideas turned into a tangible mechanism to make the balloons self-standing, children were surprised and this feeling pushed them to keep working on their ideas. This attitude



PICTURE 3.3: Some drawing of the community

PICTURE 3.4 : The 3D community map



was especially noticed in children, who were hesitant to start in the first place and ask for help about what to use and what to do. Rather than the surprise for the small success, most of the children focused on perfecting their tower in order to win the competition.

Overall the experience was perceived by the children as “fun but a bit difficult”: the fun side relied on the fact that “we never get the chance to play with balloons,” while the difficulties encountered remain inexplicable for children.

Based on these observations and comments by children, overcoming an impossible fun challenge represents only a starting point for the I can mindset development. Experiencing how to solve an impossible fun challenge makes children think critically and resourcefully to come up with out of the box ideas. However, this process happens intuitively and remains most of the time implicit or is expressed through few instants of surprise. When turning their own ideas into tangible contributions toward the solution, children should become aware of this skill and of its potential. The experimental practice conducted seems to suggest that the experience of overcoming impossible challenges, has to be combined with a reflection on the hidden success that children can spontaneously achieve.

“The things and people you really really like”.

RQ2: how do children perceive their community?

Every child community is different and extremely personal, according to the drawings created by children in the second activity. Each community is composed of recurring “members” such as moms, dads, siblings, younger and older cousins, friends, pets or beloved animals, teddy bear, robots and favourite toys, and “spaces” such as their own houses.

From the reactions observed when launching the activity, it is clear that the community is an adult category. If asked, children start wondering about it and try to associate their own meaning: the first things that come to their mind are persons surrounding them.

By comparing the final drawings and the respective explanation provided by children, it appears clear that every child pictured their community as their own comfort zone sphere where they feel safe, and they can enjoy pleasurable moments with the persons and the things they love. Being quite an abstract concept, children didn’t provide any definition of community, but on the basis of their conversations during the “3D community map activity” they would probably describe it with their own words as.

The use of adjectives also influences children’s perception of community, as when talking about “your community”, they focus on the personal sphere described above. On the contrary, they associate “our community” with the group of people they belong to in that specific moment, as it is evident, especially at the beginning of 3D community map, when they express the wish to build all their afterschool group including the teacher. This is worth noticing compared to the results of the “weaving relationship net” presentation activity, in which none of the children recognized intersections amongst their communities.

This inclination also guided the translation

of their personal idea of community into a physical landscape. Abandoned the initial intention to recreate the after school group, in a together apart dynamic, children started giving their personal sphere the shape of houses. Beyond that, they struggle keeping realistic spatial references and they rather add to their community fictional elements and spaces they would like to have in an ideal scenario: a restaurant with a bridge ending in a swimming pool, the president house, a football field on the rooftop of the houses and finally a spinning playground.

In reconstructing “our community,” physically children appear to be very self-oriented as they mainly focus on creating their own houses and on enriching the surrounding space with facilities they consider enjoyable for themselves. It is also worth noticing that almost all the elements they build refers to an adult perspective of the city, and it is surprising to observe that the playground was ideated last minute after finding the inspiration in a spinning LEGO block. Another interesting fact to point out is the mismatch between what they consider relevant in a community and the artifact they made. In a small debate that arose during the building activity, children mention that people and buildings are equally important in a community. However, only one child focused on creating a character, the first citizen of that ideal community.

It can be concluded that children perceive the community as a comfort zone sphere where they feel safe, and they can enjoy pleasurable moments with the persons and the things they love, from a social perspective. On the other hand, from a spatial one, the community is a constellation of those safe places shaped like houses, laying on the imaginary city like context with all child favorite facilities and places.

DQ2: How does reflecting over their community prompt children to take action?

Undoubtedly, the generative and playful activities made children reflect on their social and spatial perspectives linked to the idea of community, which appears to be an unusual topic. However, those considerations and creations are not sufficient as a prompt for any further activation due to the limited scope of the assignment and children’s interpretation of the community itself. On the one hand, the assignment’s scope focus and limit children’s initiative to the specific drawing, building and reflective task, without placing it in a broader frame of an activation goal. Significant is in this sense, the comment of one kid wondering. “Why are we still talking about community?” On the other hand, the community perceived by children as an ideal social and spatial place for comfort and enjoyment might not be the right source of inspiration for finding challenges and opportunities for change and ignite activation. Indeed it already represents their ideal little world made of all their favorite persons, things and places.

DQ3: How do open-ended activities elicit activation?

Following the consideration related to the previous answer, open-ended activities meant as a task with little instructions on how to perform them could barely elicit activation. The limited guidance provided allows children to express their own ideas in the format they prefer and consider appropriate. However, the lack of a broader vision and clear goal the activities contribute to doesn’t give children the chance to develop their own initiative towards it. This way, the activities are performed as small playful exercise and could undermine children’s motivation and interests in the long term. It has also been noticed that the open ended-ness and free interpretation of activities urge the educator to implement her own explanation, conditioning children’s view with an adult perspective and to address them towards her own goal if a given one is not explicit.

RES^DESIGN
RESEARCH^H
cycle 2

research through design
unlocking I can mindset and
find opportunities for change

4

Design intervention 2:
how would children
make
the world better?

4.1 Goal of the intervention and research questions

During the second part of the research through design exploration, the investigation remained on the main pillars of the empowering journey, with a significant shift of focus built upon the learnings from the previous design intervention. Experimenting with I can mindset strategy and community perception, it is clear that although the starting points for the children's activation, they result effective only in view of the overall goal. Therefore while keeping the, I can mindset and action focus as references, the activation process opens up to children's initiative. This also deepened the child-led approach exploration, which had been limited to the open-endedness of tasks by making explicit possibilities for children's decision making. In this sense, the natural self-oriented attitude unveiled in the first intervention is recognized as a positive natural inclination of children to start from defining the self before diving into a creative expressive process. With those considerations in mind, the second design intervention moves from children's personal sphere with the recognition of their abilities to the social sphere of taking action for change. Specifically, the intervention aims at inquiring how children intuitively undertake their activation process.

The intervention will answer the following research questions with the intention to obtain, from the insights, a map of children's activation process, which can inform the next design cycle.



Research questions

RQ1 How do children intuitively undertake an activation process?

RQ2 Which steps do they intuitively perform within?

RQ3 How do children recognize themselves abilities to take action?

RQ4 Which abilities to take action do children recognize themselves?

RQ5 How do children identify pro-social challenges relevant for them?

RQ6 Which challenges do they identify and consider relevant?

RQ7 How do children intuitively take action toward them?

RQ8 Which action do they take towards them?

4.2 Designing the intervention

To answer the mentioned research questions, the second design intervention was ideated as a set of 2 open-ended, hands-on activities performed by children on their own and without excessive adult conditioning.

The insights suggested inserting the activities in the frame of a clear final goal to be achieved by children. In this case, the bigger frame proposed to children would be bringing a positive change in the world. Even though “bringing a positive change in the world” might seem a scope too broad for children to tackle, it was deliberately chosen to allow children to freely align their action with their interests and inputs they find motivating and to avoid restricting it to contexts children don’t consider inspiring enough.

The first activity keeps exploring techniques for raising I can mindset. On the basis of the previously collected insights, it combines a playful challenge with a self-reflection on children “I can”s. This way, children’s self-oriented inclination will be fulfilled, while unveiling skills that could be useful throughout the following activation journey. Despite the intention to leave the process completely open for children to take action on their own terms, this step is considered essential to warm up children with a creative process in a nutshell that highlights their own potential to achieve the goal. Practically the activity proposes children open-ended questions to trigger a reflection about abilities and powers, which will be later turned into a tangible artifact representing the child.

Following the overall goal, the second activity put the focus on bringing a positive change in the world, and similarly to the first one is presented as a combination of reflective and crafting moments both aimed at the creation of

an invention that could make the world a better place for children and the others. The activity serves as a gateway to let children undertake their own intuitive, creative activation journey in search of meaningful challenges or opportunities for change, to later come up with their own solutions.

While both the unstructured and open endedness nature of the two activities and the broad goal frame chosen are necessary to answer the research questions, they could be perceived by children as too vague and hence challenging to approach. Therefore scaffolding is used both to guarantee feasibility to the intervention and to explore a technique to support a child-led process. Inspired by the main plus of the case study 6, the scaffolds will be ideated as small hints based on the possible obstacles children could encounter while completing the activity and will be formulated as questions children might be wondering during the process. The hints will not suggest an univocal process or way of performing certain steps; rather, they will show options, encourage reflection to use children’s preferences, and address practical aspects.

The design intervention format will be chosen in line with the intention, mentioned in the beginning, of letting children perform the activity more independently and without adult conditioning. This choice comes from the threefold need to create a moment in which children have power and decision making over their actions, preserve the spontaneity and authenticity of their own creative process and reduce the feeling of uncomfort and pressure of thinking and generating ideas in front of an unfamiliar adult.

Consequently, the design intervention is designed, keeping in mind the following design questions:



Design questions

DQ1: How do the scaffolds support a child-led activation process?

DQ2: How do children perform the activities autonomously? How does the design support that?

DQ3: How do the activities elicit children's activation?

4.3 Research set up

PICTURE 4.1: A Facebook post used as recruitment

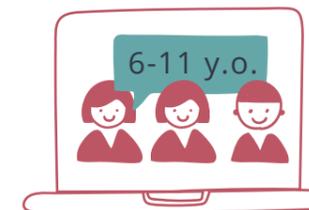


Recruitment

Due to the uncertain circumstances caused by the outbreak of Covid-19 and the shift of most schooling and entertaining activities to online settings, new recruitment round was necessary to recruit children between 6 and 10 years old to be involved in this second design intervention. The recruitment focused mainly on Italian contexts. The research goal is linked with children's expertise in creative processes and design thinking, which are still not included in the standard primary school curriculum, unlike in the Dutch education system. Specifically, I contacted the original context, the UCN children association, that after an initial interruption of the activities, I rearranged them for an online format. Moreover, one primary school teacher and one after school educator were reached out and asked to forward the invitation to parents and children. The design intervention itself was used as a recruitment tool to introduce the set of activities to educators, parents, and children, as will be further explained in paragraph 4.4.

Participants

The invitation to participate in the design intervention sent through primary school teacher and afterschool educator reached out to 20 children, out of which 3 completed the full design intervention experience. Besides, the enthusiasm and the network of the UCN managed to involve around 15 children in the activities. However, while the first 3 participants agreed to carry out the activities autonomously with the collaboration of parents as co-researchers, the UCN educator pointed out a different scenario for the children in the association. In this case, the parents support children receive in-home activities, and their collaboration as co-researcher

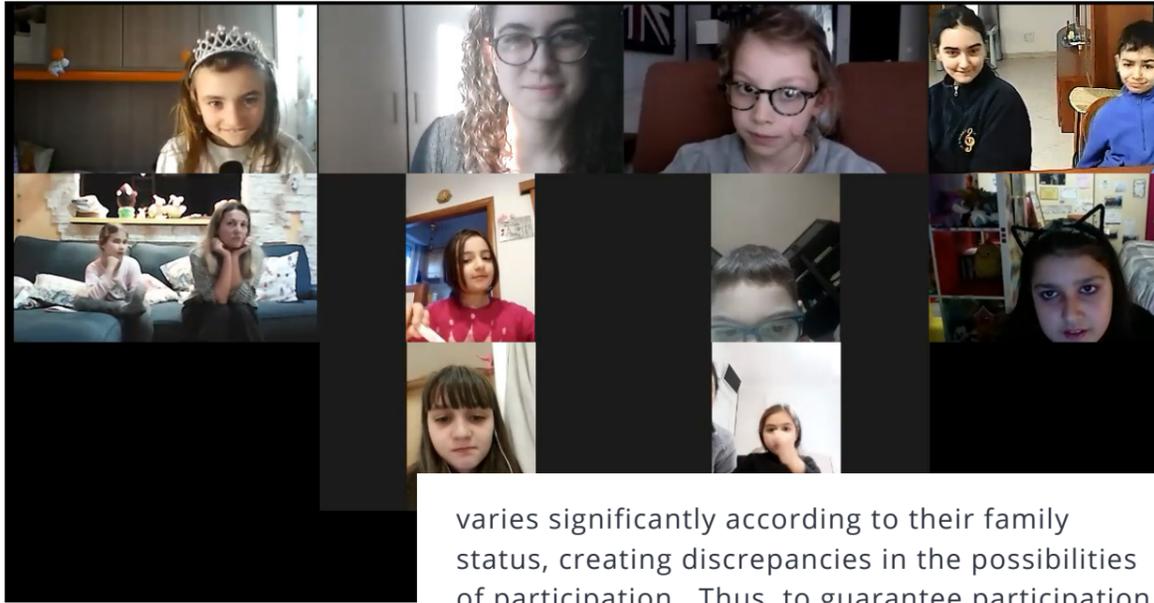


15 children UCN set up



3 children Home set up

PICTURE 4.2: A screenshot of a Zoom call



varies significantly according to their family status, creating discrepancies in the possibilities of participation. Thus, to guarantee participation and inclusion to every child willing to join, the design intervention is organized in 2 different setups.

Set up

The two scenarios, both featuring a blended online-offline mode of carrying out the design intervention, are the home set up and the UCN set up.

In the home set up the design, intervention is introduced digitally to children and parents, who will be invited to play the role of co-researcher. After the introduction, children should be able to perform the activities on their own. At the same time, parents are invited to observe children's actions, steps, type of help needed when they are stuck or encounter obstacles. In this case, parents should encourage children to consult the available scaffolds matching with their doubts and then discuss them further, to make children express their ideas and initiative, rather than influencing them.

In the UCN set up, the same design intervention is also shared digitally with parents and children. However, due to the limited parents availability to act as co-researcher, the design intervention is enriched with virtual sessions that serve as both introductory moments for showing the activities

in a digital format and interactive scaffolds, partially replacing the standard one proposed in the home set up. During the sessions, the activities will not be performed entirely under the guidance of the researcher; rather children will receive from the educator and the researcher the intended support needed to carry them out later individually. Moreover, they will also get the chance to share their thoughts and final artifacts with their peers.

In this setup, the design intervention is further used as an engagement tool by the UCN, which promoted it on the frontrunner association and UCN social channels, especially Facebook, to reach out to more children living in the neighborhood. Furthermore, in parallel with the beginning of the virtual sessions, a Facebook group totally dedicated to the design intervention, so-called "world-changer" online lab, was created as a separate track within the UCN children association current practice. The group was used to sharing graphic reminders of the weekly sessions and artifacts and progress by children.

4.4 The second design intervention

To combine the research and design demands defined at paragraphs 4.1 and 4.2, and the diverse requirements of the 2 setups, the design intervention needs to assume a multidimensional nature, able to convey the activities while enabling different levels of autonomy and support in their performance. The design intervention includes the world-changer app and a system of scaffolds, both in the same digital format as the app or designed as a virtual session to be facilitated by educators and researchers. In this sense, the whole design intervention is envisioned as a blended online-offline, digital and personal facilitation of the activities ideated.

The world-changer app

Playing a multidimensional role of interactive facilitator and children recruitment and contact tool, the app is designed as an open invitation to join a “cambia mondo”, “world-changer” mission.

It is structured visually and content-wise as an open conversation to guide children through the few steps of the mission.

The introduction and the invitation feature two different sections for the parent and the child both accessible from the home screen. While the parent is informed about the overall project and explained his role as co-researcher throughout the activities, the researcher introduce to the child as half explorer half inventor and request them help to discover how to make the world better with their powers, by trying out some activities. The choice of using a real storytelling comes from the intention to establish an honest relationship with children and avoid assigning them fictional roles in which they don't recognize themselves and that could bring the whole activity to an imaginary level.

The non-rules moment serves as unconditioning from the standard homework like set up and encourage children to express freely, rebels and refuse adult influence.

My powers activity invites children to wonder about their powers, abilities, passions, things they can do to make themselves and others happy and represent all those elements in an avatar. The activity is launched with some triggering questions and proposes afterward abstract step-by-step instructions to think about the topic, turn the reflection into a tangible artifact, explain it, and explain its creation in a video recording. Pop up windows appears to allow the upload of the video.

Following the same layout, the world-changer activity challenges children to make an invention that can bring a positive change in the world.

At the end of both activities, after the upload of the video, a celebration moment is displayed, specifically, the closing one open up a pop-up page to invite children to share their experience in a video call.

PICTURE 4.3: Some screenshots of the World-changer app





The aesthetic style of the app was kept simple and sketchy and illustrations serves as abstract visualizations of the written instruction to be easier understood by children. Due to the set up choices, the app has been developed in Italian, and it is available, automatically translated in English, at the following link: <https://samiramiccolis.wixsite.com/cambia-mondo> or in the APPENDIX G.

Scaffolding systems

Two types of scaffolds are envisioned to offer children support while leaving the process open-ended: the ones embedded in the app and a series of virtual sessions, which were designed keeping in mind respectively the home set up and the UCN set up.

The app scaffolds are designed as little helps fulfill children's needs during the progress of the "mission" and are easily accessible via a small speech bubble icon in the bottom corner of the activities page. The hints are presented in the form of possible questions children might be wondering about. For instance, in the case of "my powers" activity: how do I find my powers? what is an avatar? how can I build my avatar? and which material can I use?

In the case of "world changer", where do I start to change the world? What can I invent? Which material can I use?

When clicking on the question icon, different types of contents are displayed ranging from the definition of the word avatar, to different options of materials and ways that can be used to materialize ideas, till small associations exercises or additional triggering questions to unveil tacit abilities or inspire the creative process.

The virtual scaffolding sessions don't limit their scope to offering input for specific difficulties children might encounter on their journey, but give overall support replacing the co-researcher parent's role. Moreover, they enrich the world-changer mission with small additional tasks that respond to children's creative needs and

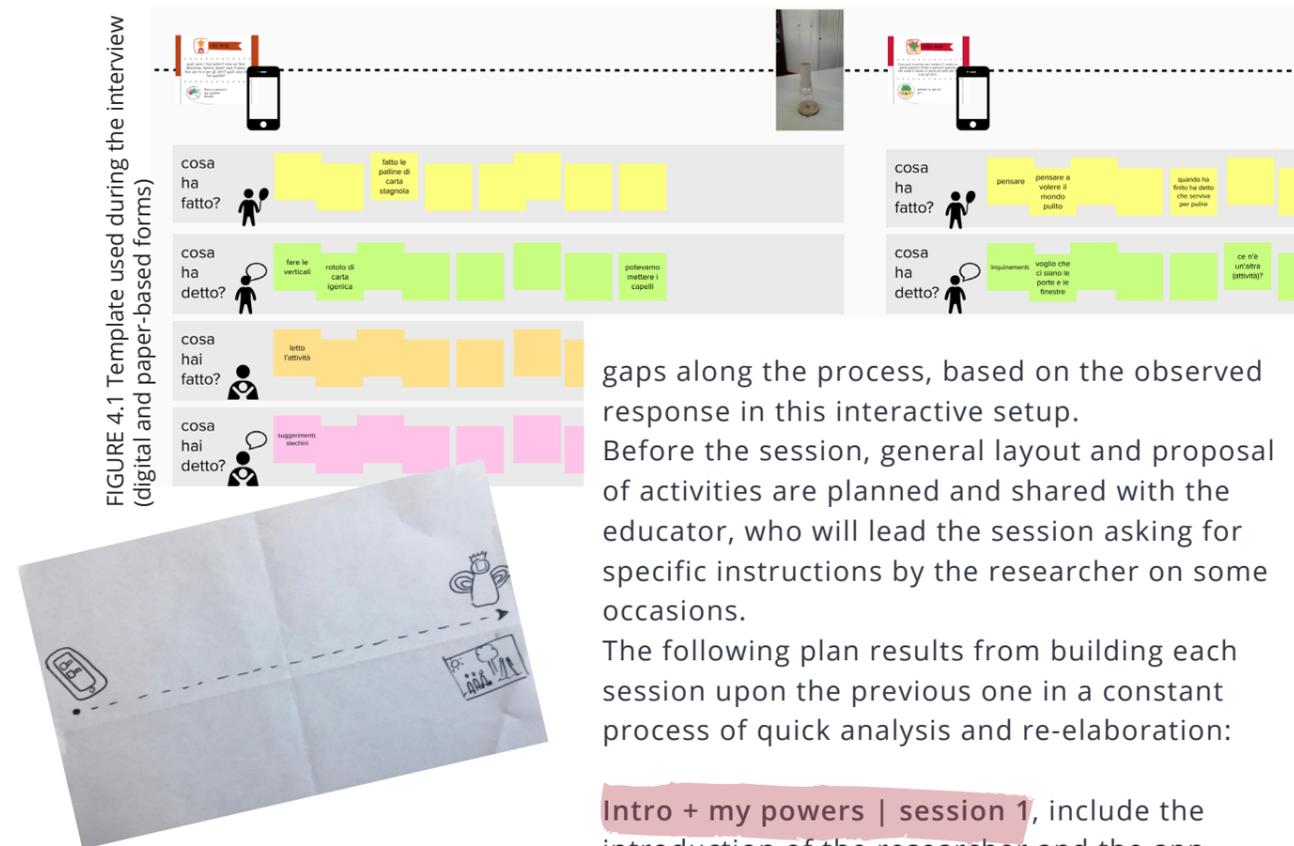


FIGURE 4.1 Template used during the interview (digital and paper-based forms)

gaps along the process, based on the observed response in this interactive setup.

Before the session, general layout and proposal of activities are planned and shared with the educator, who will lead the session asking for specific instructions by the researcher on some occasions.

The following plan results from building each session upon the previous one in a constant process of quick analysis and re-elaboration:

Intro + my powers | session 1, include the introduction of the researcher and the app and the invitation to children to join the world-changer mission. "my powers" activity is launched, by children themselves reading it out loud in the app.

Avatar + postcards of change | session 2, include a sharing moment where children describe the avatars created and how they represent their powers, by asking each other questions. Then they are invited to think what they could change with their powers. Before launching the world-changer activity with a readout loud moment by children, a generative break can be used as sensitizer to anticipate the discussion constructively: children are asked to draw about last time they noticed something negative wanted to change. After discussing the drawings and unlocking inspirations, the app is read out loud and commented.

World changer + debate for change | session 3, was preparatory to create the invention and aimed at stimulating children to choose a challenge resonating with their interests rather than converging toward the same common

issue. After writing on a digital whiteboard the main opportunities for change discussed in the previous sessions, the group is split into smaller teams where children help each other understanding their interests; what they personally want to fight for and finding the change they would like to bring with their own invention. Letting children facilitate each other in this decision-making process aligns with the intention to reduce the adult influence along the creative process. Committing to their own challenge by writing it down serves as re-introduction of the world-changer activity;

Invention | session 4, start with children sharing the artifacts they created as invention and explaining each other which ideas they had in the process and how they turned it into the tangible object they made.

Data collection

The artifacts created by children and their explanations are gathered via the upload feature in the app or are sent by participants to the researcher as instant messages. This allows to collect the outcomes of the intervention while participants are carrying out the intervention and to adapt the other data collection procedures to the participants.

In both setups, the main and essential source of insights consists of a final interview aimed at retracing the steps of the creative process intuitively followed by children to come up with a positive change and unveiling the links between the latter and children abilities and interests.

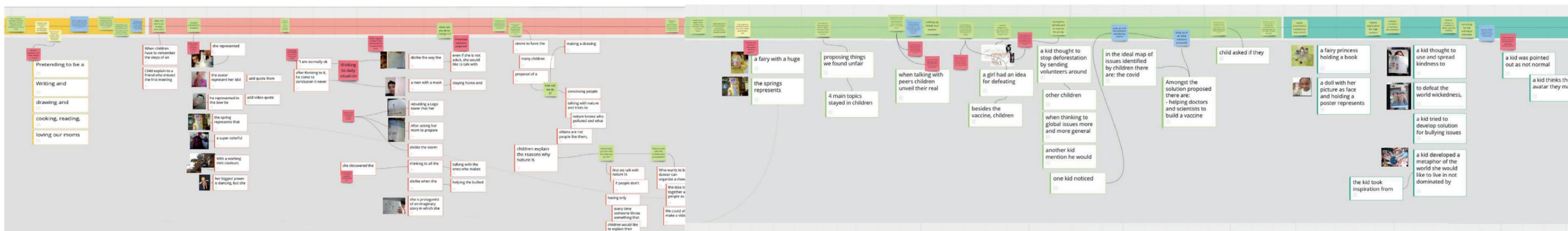
The interview is performed as a closing activity of the design intervention with either child and the co-researcher parent or only child, according to the parent level of involvement and child age. This aspect defines if the interview session has a unique moment where the child is the protagonist or a second one dedicated to the parent.

The interview opens with a detailed description of the artifacts created by the child, followed by a digital or paper-based timeline of the overall design intervention as experienced by the participant and eventual co-researcher. The exercise aims to make explicit all the actions undertaken by both children and parents from the launch of the intervention, till the creation of the 2 artifacts, with a focus on highlighting the reasoning behind those actions and strategies to overcome challenging moments. After having an overview of the creative process, further questions deal with the link between children's abilities and their use throughout the process, affinities between children's interests and the issue tackled and the ways to turn their invention into something feasible.

Beyond helping to recall at the memory the experience based on his observations, the parent co-researcher if involved, is also asked about his role, influence and contributions to the activities. All the interview sessions are audio and video recorded after receiving verbal consent from the adult arranging the session.

Besides the final interview, which was performed with 3 children from home set up and 6 children

FIGURE 4.1: Template used to analyze data



from the UCN set up, another relevant source of information recognized on the go is the UCN virtual sessions for activities launch and interactive scaffolding.

In this context, the researcher is offered the privileged position to participate as an active observer, supporting the intervention's launch and facilitating the scaffolds, but mainly observing and listening to children's reactions, behaviors, and comments throughout their creative process. Therefore the virtual sessions are audio and video recorded.

Data analysis

Considering the qualitative and empirical nature of the research, a preliminary analysis of the data collected has been performed on the go, by downloading and analyzing the videos shoot by children to explain their artifacts. The descriptions transcribed and matched with a picture of the artifact were organized in a table that summed up the outcomes of children's creative journey.

However due to the multidimensionality of the data collection sources and the need to analyse both the outcomes themselves and the process followed by children to achieve them, an analysis on the wall is performed. The analysis is aimed at reconstructing the children activation process, in line with the main research question, and it is guided by a template which organize the procedure as given by the researcher and the reactions and responses by the children captured through quotes in 2 lines along the horizontal axis indicating time. Beyond the intended procedure all type of input given by the researcher, by the educator or asked by the children are included and linked to the respective children behaviours. All the information included in the template comes from data collected during both the virtual scaffolding sessions and the final individual interviews, transcribed and summarized in statements cards. The obtained overview is then used to generate insights and consider answering the research questions. The entire overview can be found in APPENDIX I.

4.5 Results: answering the research questions

RQ1 How do children intuitively unertake an activation process?

RQ2 Which steps do they intuitively perform within?

Children's intuitive activation process starts from their enthusiasm and willingness to achieve the goals proposed with the 2 activities of the design intervention and moves within the scope of materializing their own abilities and designing a change-making intervention. The steps they perform are illustrated in FIGURE 4.2A and described below.

When asked to create an avatar representing their powers, children instinctively start reflecting on what they do more often, what they like and dislike, which brings them to immediately select at least a few items and passions they want to include in their character. This might happen through reflection only or through exploration in search of objects that could inspire forgotten abilities, such as the ballet shoes or the sewing artworks, or that could be included in the artifact itself, as the feathers from an old dance costume and a childhood passport photo. Most of the children are quite straightforward in choosing the "can do" that represents them best. However, when they are doubtful and seek completeness in their abilities set, the reflections extend for a longer time and include things they have been taught in school and even thinking about what they want to be when they grow up. They might also start wondering about what is power exactly and how they can be sure they are good enough in specific fields to consider it a power. In this case they seek help and confirmation in adult advice by asking them which skills they have. In fact, according to children:

"When you are doing something you don't think to yourself, but to the thing you are doing, so other people should tell (which powers you have) because they know better"

With the list of powers in mind, children start materializing them into their avatar. Most of children start this phase by completing the collection of materials they had started to get inspired. Materials children especially enjoy can spark their creativity to include them in the artifacts. Looking for materials or having them easily accessible and available support children in the transition from ideas and tangible artifacts. On the other hand, some children approach this phase less experimentally, trying to figure out how to make the avatar directly. In this case, children might envision a blurry final result, and if they feel they lack the skills to achieve it, they ask for help to whom they recognize as “experts”:

“I wanted to make it like a rag doll I had seen in a video, and I asked my grandma if she could help me out”

Showing engagement and announcing a willingness to help, while giving children the time and opportunity to find a solution themselves, could also be useful to let children realize they can make it by themselves. They actually didn’t need the help they asked for.

“Mom told me she would have helped me, but then I made it by myself, and she admits she wanted me to be more confident”

However the lack of skills and constructive contributions from “experts” can completely stop children initiative:

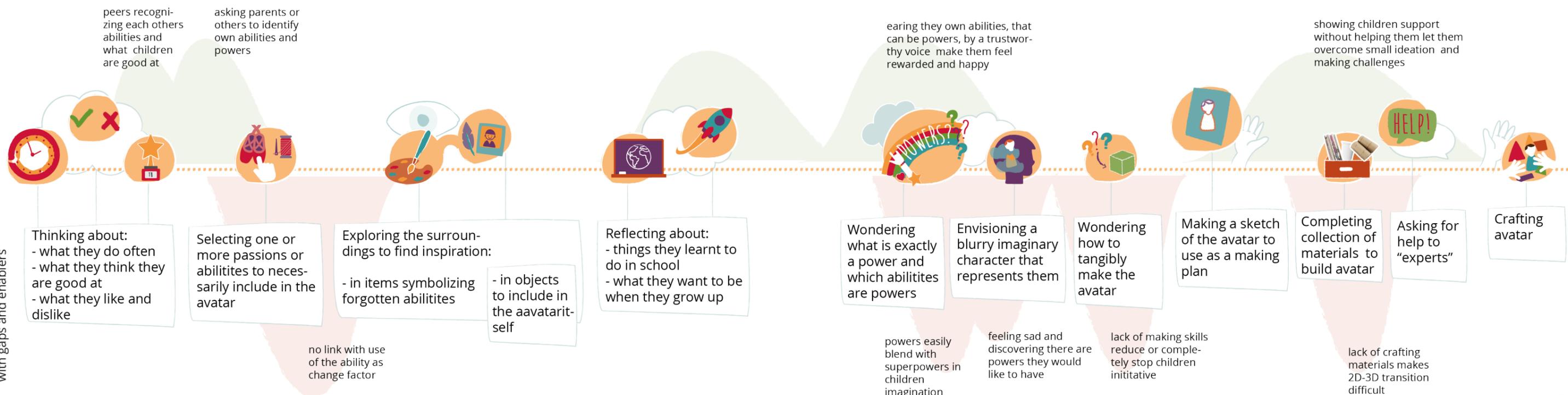
“ I made a drawing of my avatar and then I wanted to make it 3D with paper, but I didn’t know how so I asked my parents and they also didn’t know, then we checked in Google, but there were only the avatars from Minecraft and I didn’t want it like that”

In other cases, the sketch of the avatar was used, under the parent’s suggestion, as a reference to keep the focus while building all the avatars parts and putting them together.

During the final assembly, children might require a lot of external support if they have chosen to use tools that are considered dangerous, such as the hot glue gun.

When asked about creating an invention that could make the world better, children are more

FIGURE 4.2A: children intuitive activation journey with gaps and enablers



hesitant and the scaffold postcard of change, making a drawing about the last time they noticed something they wanted to change is necessary to unlock the process. Initially, some children struggle to find something to focus on and mention: "But I am okay with everything, I like everything". But after a small silent reflection, they easily overcome the idea that there are no opportunities for change. They actually find many different sources of inspiration: small episodes of their daily life where something went wrong and they managed to come up with a solution, big issues they have heard adults complaining about; problems that they learned in school and they can especially empathize with even without personally experiencing them, such as children exploited and bullying and also global issues that have an effect on their surrounding and they learn to care about in school and in daily life, to name one pollution. When presenting each other their drawing, children naturally engage in free debate about the issues they spotted trying to add their personal experience and opinion or to formulate immediate solutions.

In this debate and inspired by the questions "how can we do it?" children go through an unconscious problem framing, in children mind the issues that matters are framed as in fairy tales. They are big evils spread across the world, affecting it in many different places; and they are mainly caused by

guilty adults who are pointed at as villains and seems not know what is good and right. Like in the fairy tales, on the opposite side stands the good beings mainly identified with all the children and natural elements.

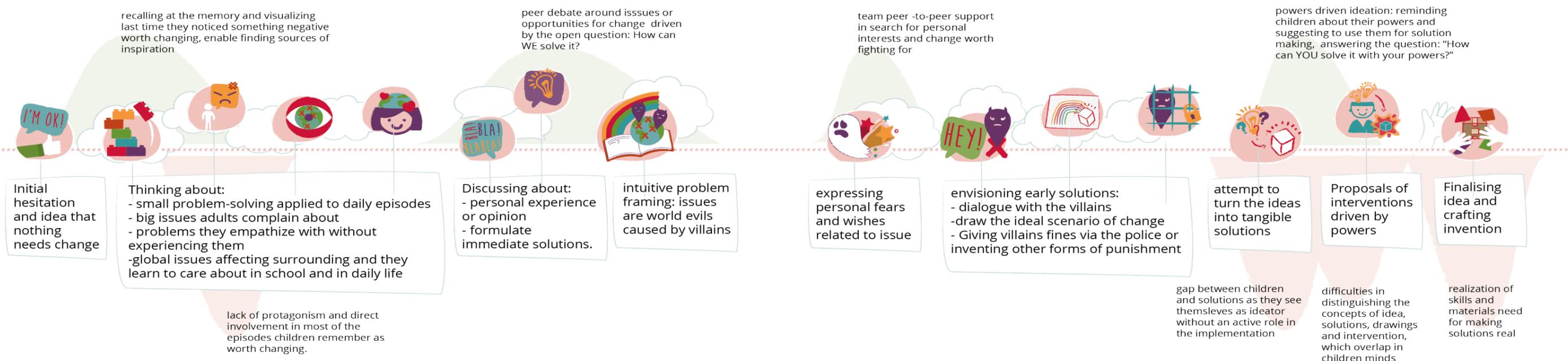
If splitting the conversation in smaller groups with the suggestion to help each other find their own interests and the change they want to fight for, children start unveiling why they want to defeat certain issues intuitively climbing up the ladders till reaching the sphere of their personal fears and wishes.

"I would like to change this thing of the virus (referring to Covid-19), I mean it is very annoying... this way I am going to go directly in the 6th grade and I don't want to... I want to do at least another year in my school with all my friends."

However, those personal challenges are rarely brought to the attention of the whole group. Following the excitement of the ongoing debate and on the wave of the trigger, "how can we solve it?" children start envisioning early solutions for the issues they mentioned, which can be clustered in few categories.

"We should try to reach these persons (the villains) and ask them "why are you polluting the nature where we live and grow and that gives us life?"

FIGURE 4.2B: children intuitive activation journey with gaps and enablers



In line with their fairy tales vision of the issues, the first solution that comes to their mind is creating a dialogue with the villains in the attempt to make them reflect on their bad actions and make them change their minds:

The background idea is that the villains don't distinguish right and wrong, and they keep fomenting the issue due to unawareness about the effects of their actions and the existence of positive alternative behaviors. A similar solution involves talking to people that could help them defeat the villains, such as the police.

"We should share these ideas about the environment with the police so that they can check everywhere whether someone throws something dangerous and give him a fine, they should especially be next to the bins."

Giving villains fines via the police or inventing other forms of punishment are also very common problem-solving strategies for children

"As soon as you throw something... fine, but a super serious one, as expensive as the bills of water, gas, and electricity! Yes, it should cost more than a house with a big garden!"

When ideating punishment themselves, children envision systems of prisons and cages which reflect their simplistic idea of justice.

Finally, drawing is also considered by children a possible solution. They draw the final scene they imagine to experience if the issue is solved or symbolic representations of the solution, believing that showing those artifacts to people could motivate them to change their behavior. This clearly show children struggles in distinguishing the abstract concept of ideas and solution from the artistic and communication tool used to convey them. In this sense, the meaning of drawing, idea, and solution overlap in children minds.

It is worth noticing that as children were not fully protagonists of the challenges and opportunities for change they identified, similarly, they are not the direct makers of their solutions. Rather they

ideate interventions that should be implemented by someone else. As an additional scaffold, children were asked, "how can you solve those issues yourself with your powers?" which immediately unlocked creative possibilities to approach those

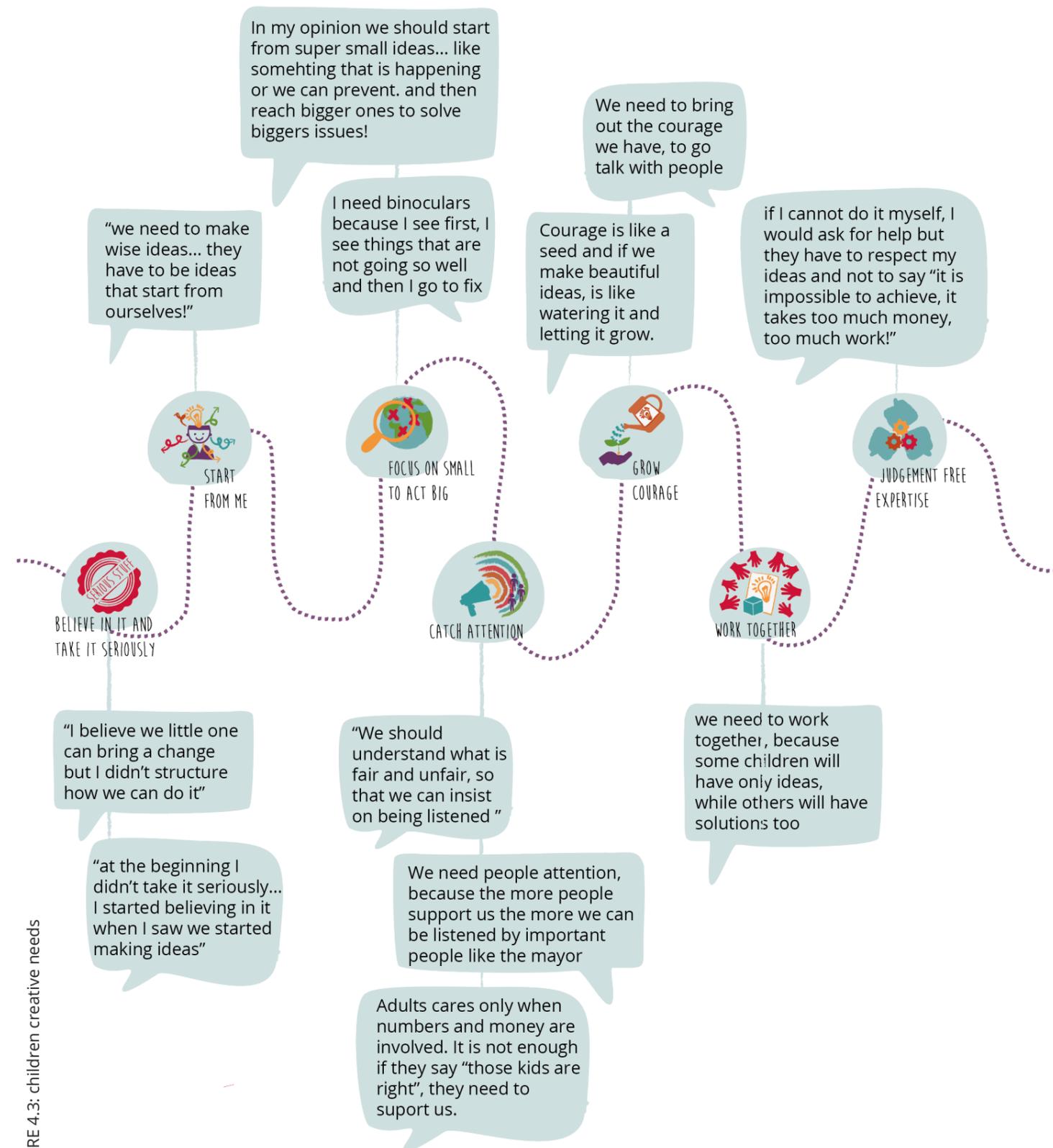


FIGURE 4.3: children creative needs

issues driven by the previously identified abilities. Those solutions together with the final ones developed as inventions concluding world-changer mission are presented below. At the end of the experience children are able to formulate their own creative needs for future taking action, summarized in the overview FIGURE 4.3

DQ1: How do the scaffolds support a child-led activation process?

The scaffolds were ideated as way to support children throughout the creative process, by offering them the input and the help they needed to move on their own way toward the final goal.

However none of children who completed the activities in the home set up used the scaffolds as intended: they either didn't check them at all following the sparkle of their creativity or under suggestions of their parents and driven by curiosity, they read through all of them for the sake of completeness and for the fear of performing the activity wrong. In this sense, the scaffolds represented only an additional source of inspiration and instruction.

In the UCN set up the scaffolds were proposed as small activities within virtual sessions, which allowed the researcher to introduce them at the moment they seemed more necessary. It is worth noticing that although children have a clear final goal, such as creating the invention, being totally novice in a creative design process, they don't fully recognize what they need, to reach it, and when exactly.

"I know we can do it, but it is a thing (creating an invention to change the world) that I didn't structure how we can do it"

In this sense, being only partially aware of their creative needs, children were not in the position to express and request specific forms of support, rather they dive deeper in the activity they were engaged in that moment.

Recognizing and defining those deadlock situations become essential to introduce appropriate

scaffolds along children creative process.

The role of scaffolds support a child-led approach, not as a way to allow children decision making power over the steps of their process as it was originally envisioned, but as a way to build around children intuitive creative process a set of child driven enabler responding to the gaps encountered.

The full overview of enablers and gaps can be found above in the FIGURE 4.2A/4.2B matching with the steps

RQ3 How do children recognize themselves abilities to take action?

RQ4 Which abilities to take action do children recognize themselves?

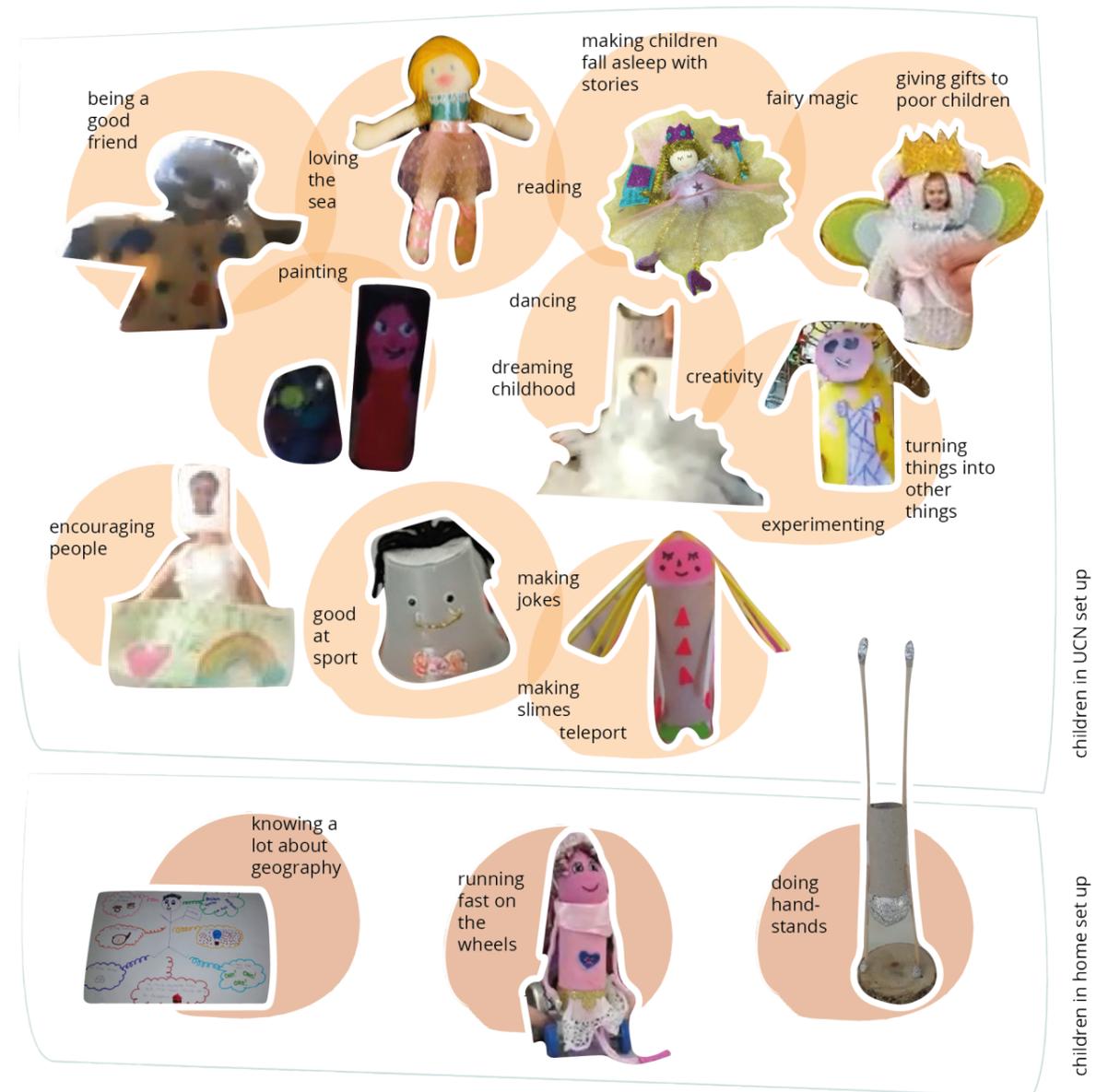


FIGURE 4.2: Overview of the Avatar

Many abilities children own, ranging from dancing and painting to “turning things into other things” are recognized by children throughout the creation of the avatar. Although children easily spot these abilities and cluster them as powers, they remain quite skeptical on the potential of their own abilities as a mean for taking action. This might depend from the fact that they have never considered or been taught that those abilities could be useful to reach a relevant purpose. Moreover it has been noticed that even when children mention certain abilities as powers, they are not fully confident in mastering that skill. This gap is intuitively overcome by asking adult or peers confirmation of the ability or having a tangible proof of the competence through direct experience. In the sense the creation of the avatar is in itself a playground for abilities testing as its crafting aligned with children powers probably entails small challenges related it. For instance the power of sewing is put to test by the creation of an avatar doll and its success make the child feel proud and more confident of her own skill. In a nutshell this represent the process that ignite “I can mindset” on a broader scale too. In order for them to develop true awareness of their abilities and their usefulness, children need to experience their potential through practice.

“At the beginning I didn’t believe it so much, I didn’t think children could make something, but then I saw that we are already making ideas and this makes me believe in it!”

RQ5 How do children identify pro-social challenges relevant for them?

RQ6 Which challenges do they identify and consider relevant?

The range of pro-social challenges children identify and consider relevant to solve is broad, originates from different source of inspiration (see RQ1, RQ2) and has its common denominator in the knowledge children have of them, being it direct or indirect.

The challenges mainly belong to 2 categories:

environmental and social challenges. One of the main issue children are concerned about is the pollution in all its different forms including the cigarette butt left on the ground. In this sense it might seem surprising children interest in such adult related problem. The fact that children don’t seem to be the direct protagonist of the issues they mention has to be attributed to their personal problem framing which make them see the issue as a big evil rather than as a personal struggle. As shown with a peer to peer enabler, their interests arise from a personal wish or fear. However in children vision, tackling a bigger issue is more effective, has beneficial effects on their personal sphere and worldwide and is more likely to be relevant for adults too. This would have effect on their ways of taking action.

FIGURE 4.3: Overview of the challenges identified



RQ7 How do children take action toward them?
RQ8 Which action do they take towards them?

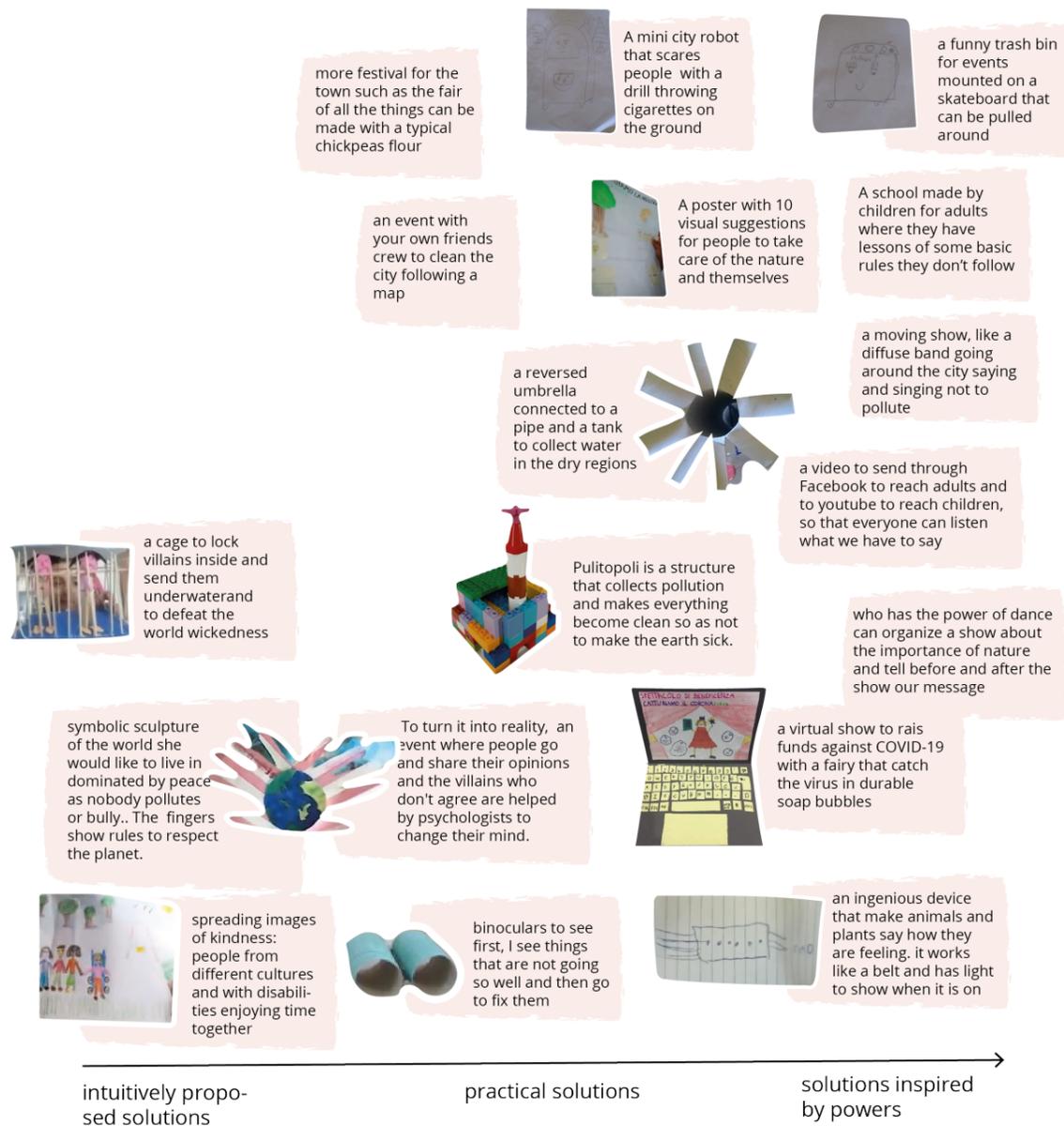


FIGURE 4.4: Overview of the Solutions

Children action toward the challenges identified varies on a spectrum that goes from intuitively proposed solutions to interventions driven by children powers.

The intuitive solutions inspired by their fairy tale problem framing mainly belongs to 3 categories presented in RQ1, while the powers driven solutions are triggered by the question "how can you solve it with your powers?". In between there is a

third group of solutions which is characterized by a practical nature, whose implementation is totally dependent from adults. While this reflect the effects of the lack of protagonism of children in the challenges, using children abilities as trigger for solution making encourage children to develop ideas which are feasible for them and let them practice through experience the potential of their abilities.

DQ2: How do children perform the activities autonomously? How does the design support that?

Although the design intervention was ideated to allow children to perform the activities more independently, the design doesn't support an autonomous use. 2 out of the 3 children, aged 6, who carried out the activities in the home set up completely relied on the parents support both for reading the instructions and translating their ideas into the final artefacts. The third participant, aged 10, mentioned that the language was really appropriate for children and he really enjoyed reading through it. This data, together with the higher number of participants of the UCN set up clearly show the limitations of the app and the related scaffolds. First of all the misuse of scaffolds increased the initial amount of instructions, which are already experienced as demanding for the youngest ones while leaving the process free of further guidance. Moreover, on the contrary as intended, the app doesn't reduce the influence of adults in children creative process as they became the main collaborators.

"A child cannot do this by himself because there were many things I didn't know, so there should be a parent beside to explain you"

Finally the app arise issues of credibility:

"I liked the app, but it doesn't give me a perception of reality! I started believing in it when things got serious and we started drawing, debating and thinking together..."

DQ3: How do the activities elicit children activation?

My powers activity culminating in the creation of the avatars contribute significantly to the build up of the I can mindset necessary to put the basis of an activation process. As mentioned in paragraph FIXME, the activity enable a reflection aimed at identifying children abilities and immediately setting up a playground where to practice them to increase children awareness of their potential.

Learnings about the UCN context

-Attendance to the online activities is not consistent, so children decide when to participate according to their schedule.

-Children are used to be guided step by step in the creation of artifacts, with instructions on how to do their creations.

-Male participants are less due to idea that crafting activities are "for girl" which is still rooted in the local community.

Requirements V1

Change by design

The tool should be conceived as a change by design tool:

R1 The tool should make use of design techniques to encourage problem-solving and solution ideation aimed at making a change related to prosocial issues meaningful for children and surrounding them.

R1.1 The tool should be suitable for novice to the design processes.

Empowering journey

The tool should support children in their self-activation journey, specifically in:

R2 Building up children I can mindset by raising awareness of children abilities and their potential in solution making.

R3 Gives them decision-making over the identification of the challenge and the action to take by making them protagonist of the challenges they identify and the solutions they propose.

R4 Being actively involved in the community by practicing courage of sharing their ideas and getting people attention.

Child-led

The tool should facilitate a child-led creative process, meaning that:

R5 The tool should support children intuitive, creative process with activities open-ended enough for children to express freely, without imposing predefined roles and complying with children natural inclination.

R6 The tool should address children directly with a language suitable for them to reduce the power relationship and competence gap with adults.

R7 The tool should allow children to go through the creative process without excessive conditioning from adults, balancing between adult initiated and child-initiated activities.

Practical and contextual factors

R8 The tool should be physical as the target group is not familiar with digital mean, which doesn't convey trustworthiness and a sense of achievement of the overall goal.

R9 The tool should be suitable for use in a large group of children.

R10 The tool should be modular to adapt and fit within the current practice of the UCN children association, sticking to the alternation of crafting and thinking moments.

DESIGN
RESEARCH

design : toolkit for
positive changemakers

cycle 3

5 The final toolkit

5.1 Ideation and ideation directions

Inspired by the insights collected throughout cycle 2, cycle 3 starts with a deep dive in the ideation phase. The map of children's intuitive activation journey with the respective enablers and gaps experienced and encountered by children highlights many opportunity spaces for the achievement of the project goal. Specifically, three directions are identified based on specific insights and are presented below. In parallel, a free sketching session served as a way to externalize and materialize some of the tangible solutions triggered by the reflection on the three directions. While the overview is shown in FIGURE 5.1, the most relevant are also presented in the

respective direction paragraph.

Direction 1: Children message through the speculative imaginative intervention

The direction entails developing a tool to support children in creating imaginative provocative interventions that could convey adults a powerful message about the issue children consider relevant.

This direction is built upon the elaboration of 2 main insights: on the one hand, children natural inclination to solve issues by establishing a dialogue with the responsible, which practically translates in their high demand for people's attention and support. On the other hand, children's intuitive, creative process has shown that children spontaneously converge towards imaginative, provocative solutions, which could make adults reflect. Examples are the underwater cage for villains, or the belt device to give voice to the trees suffering for the pollution.

Therefore the background idea of this direction is to give children the chance to use their own proactive ideas as a communication means to send a powerful message and even a notice to adults.

One idea in this direction is represented by an activities program culminating in a festival where

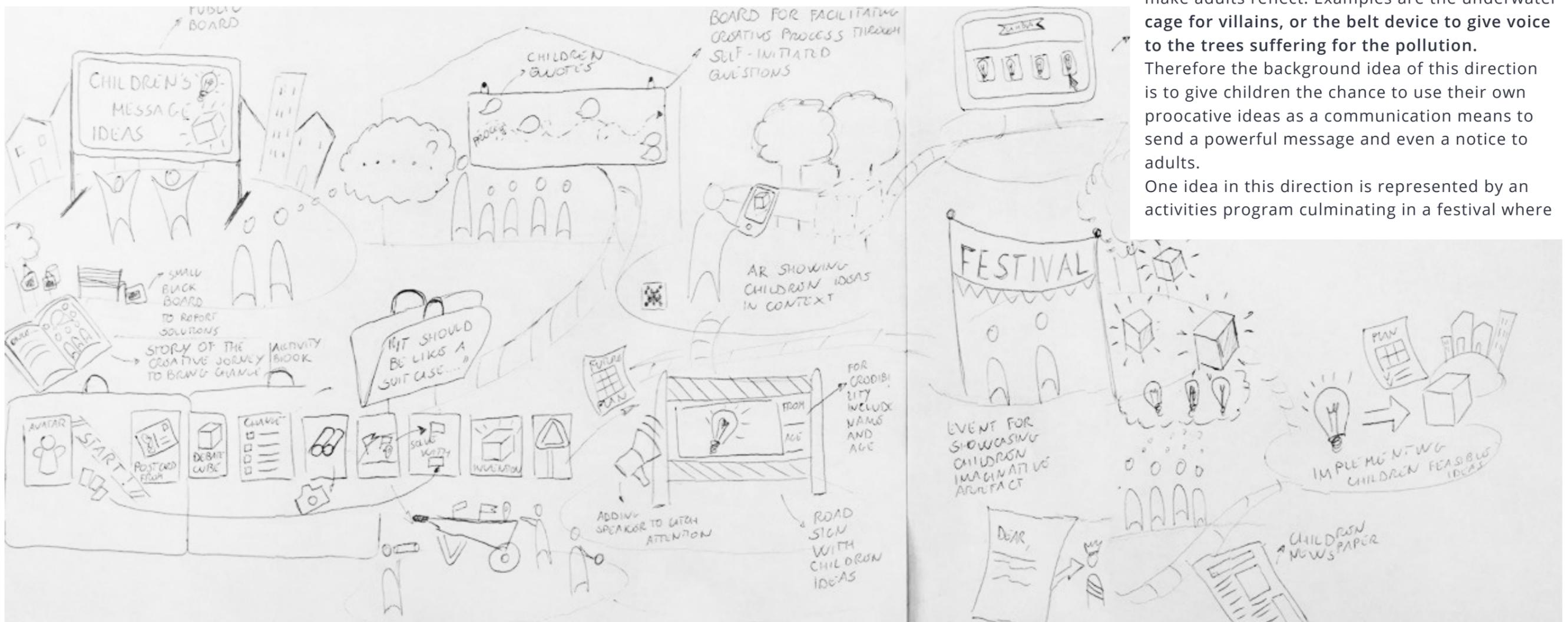


FIGURE 5.1: Free sketching session

the prototype of the imaginative intervention ideated and made by children can interact and spread the message to people. Even though the performative nature of the event is also aligned with children's inclination, this direction entails the training of new skills that children recognize lacking to create those artifacts physically. This direction also opens up questions about children possibilities to recognize the value of their intervention as a carrier of a provocative message for adults and on the other side how adults would perceive it considering the young age of their authors.

Direction 2: children protagonists of real solutions

This second direction envisions the development of a tool to support children in becoming the protagonist of the challenge they identify and the solution they propose. In this case, the proposal comes from the insight unveiling a gap between children and their experience of certain challenges they mention as relevant, resulting in reduced involvement in the implementation of the solution. The background idea is to stress the focus on the enablers that help children strengthening the links between themselves and the contexts of the challenges, to stimulate realistic solutions.

In line with this case, the kit should probably include digital tools such as an app that allow to visualize children intervention in the physical environment through augmented reality technology and a digital platform where to upload children's projects as a repository to share prior the implementation.

It is worth noticing that the type of challenges and solutions children engage with is vast and includes both very imaginative ones and more realistic ones. Therefore this direction implies further exploring the impact of the contextualization on children's creativity, as coming up with real solutions might only be perceived as limiting for children's creative

sparkles.

Direction 3: on the wave of children's own creative journey.

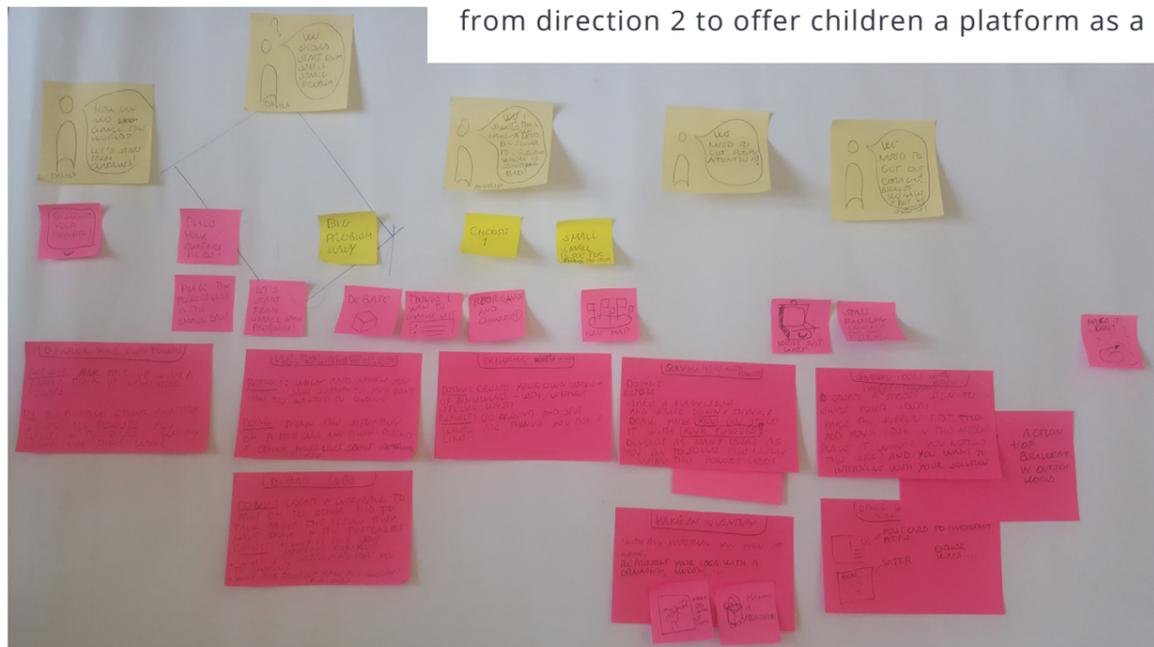
The third direction is aimed at supporting children in implementing their own creative journey based on the steps they proposed as necessary to tackle relevant issues. In this case, the main source of inspiration is all the quotes children used to express what they needed throughout their creative process. Those could also be implemented in the tool idea itself in the form of a storyline children tell their peers to introduce a path of activities inspired to their own intuitive practice. The idea could then be shaped as an activity book with a full story about children bringing positive change and the input to perform the activities or as a poster with activity cards. This direction implies the risk of missing the focus on the final activation goal to fulfill a child-led process.

5.2 Conceptualization

To move on in the ideation process and to converge the presented directions and ideas into a concept, the 3 directions were compared with the second version of requirements. This didn't serve to confirm or discard a specific direction, instead of selecting the elements to include and combine to inform a furthermore specific ideation.

One of the main requirements refers to the child-led approach the tool should support. This makes it immediately clear that the first 2 directions don't fully align with this requirement as they include a push toward a speculative solution or an implementable one. As explained above, children perspectives on those directions need further exploration. Moreover, given this requirement, the third direction seems to be an essential approach to be used as a basis for the concept.

In line with the 3 pillars of the empowering journey, and adding on the intuitive, creative journey approach, the tool should combine the focus on contextualization to make children protagonist of their challenges and solution from direction 2 to offer children a platform as a



PICTURE 5.2: The project conceptualization

means to communicate with adults from direction 1.

Looking back at the ideation sketch with in mind the contextual requirements, it is clear that all the digital ideas cannot be considered appropriate, as a digital tool or platform would not convey children's trustworthiness.

Concluding, the tool takes the shape of an activity set based on the storyline of children's intuitive, creative journey culminating in a physical platform for children to share their ideas.

Content creation

To create the tool's content, the 3 pillars of the empowering journey unveiled through the research through design cycle and summed up in the requirements were taken as a reference. On this solid base, looking back at children intuitive activation process (FIGURE 4.2), its phases with the successful enablers were combined with a storyline based on children creative needs expressed in their quotes.

This allowed the abstraction of a structure the tool should necessarily include and around which the set of activities should be built

1-raising I can mindset through powers materialization;

2-finding relevance in opportunitiess for change through peer debate;

3-making children protagonist through opportunities contextualization;

4-powers driven ideation.

5-strengthening courage through expressing ideas.

In line with the requirements of having modular activities that fit the practice of the UCN children association and alternates moment of crafting to moment of reflection, these 5 phases are



articulated in 14 activities described in the final toolkit paragraph.

Embodiment

One of the primary source of inspiration for the physical appearance of the tool is again one quote from a child:

“Changing the world should be like preparing suitcases, it is a serious activity but made it slow and together can be fun and in the suitcase we should put all our ideas!”

The set of activities was therefore envisioned to be organized and place on a board that once folded into a folder looks like a suitcase. Beyond esthetic purposes, the board itself is necessary to arrange the activities along with a flow that covers all the phases presented above. Moreover, the need of displaying the activities on a board aligns with the requirement of making the tool suitable for use in groups. Having an overview of the activities to perform and clear visible final goal is also useful for children to move to the next activity after diving deep in the current one, by setting boundaries amongst them and closing instructions.

The activity goal and instructions are not printed directly on the board but shaped as independent flyers/cards to adapt to the different set up the activity entails. Consequently they are placed and secured to the board by fitting them in small bags

attached to it.

The tool also includes additional materials and templates needed to perform the activities proposed. After a quick prototyping session aimed at trying out different types of configuration of the materials over the board, it has been decided not to include the templates in the activities flow and overview, instead to place them in an additional pocket on the back of the suitcase. Indeed the use of the templates by a group require an indefinite amount of space that cannot be restricted to the one of the board.

The tool can be either received as a completed product or used in a DIY mode, by printing and assembling all the components. Therefore all the elements sizes are based on A4 or multiple of it.

5.3 The toolkit: components and experience

"Il priscio" is an activities set for young positive change-makers, that supports children in undertaking a child-led activation journey to utilize their own abilities to take action towards meaningful prosocial challenges within their community.

The toolkit consists of one activation journey board, 14 activity cards, and additional templates and materials to perform the activities.



FIGURE 5.2: The priscio kit

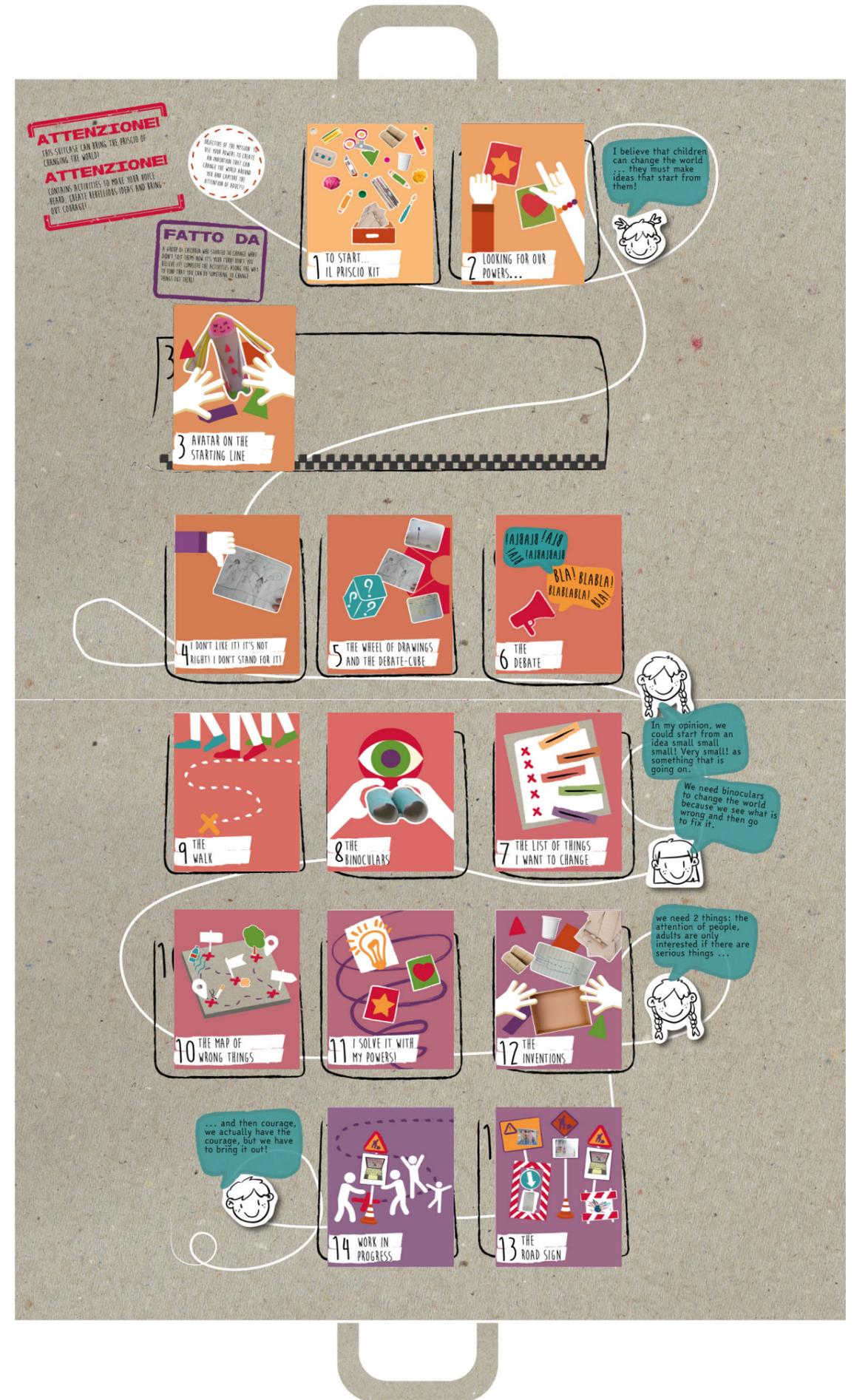


FIGURE 5.3: The board and the 14 activity cards

The name of the tool “Priscio” means, in the local dialect, the excitement that anticipates a joyful event, something a person looks for, a change and is very present in the everyday language in expression like: I had “priscio” to do it. The expression was considered appropriate to communicate the attitude during the tool experience and therefore integrated in many parts of the content. The tool was designed in Italian and translated in English.

The full content of the tool can be seen and downloaded from the following link and QR code. Although the toolkit is intended to be physical, a digital version is created for the initial bridging session of testing and for showcasing purposes.

<https://samiramiccolis.wixsite.com/ilpriscio>



The activation journey board

Resulting from the embodiment considerations, the activation journey board allocates the 14 box slots representing the activities and corresponding to the phases as shown in FIGURE 5.4.

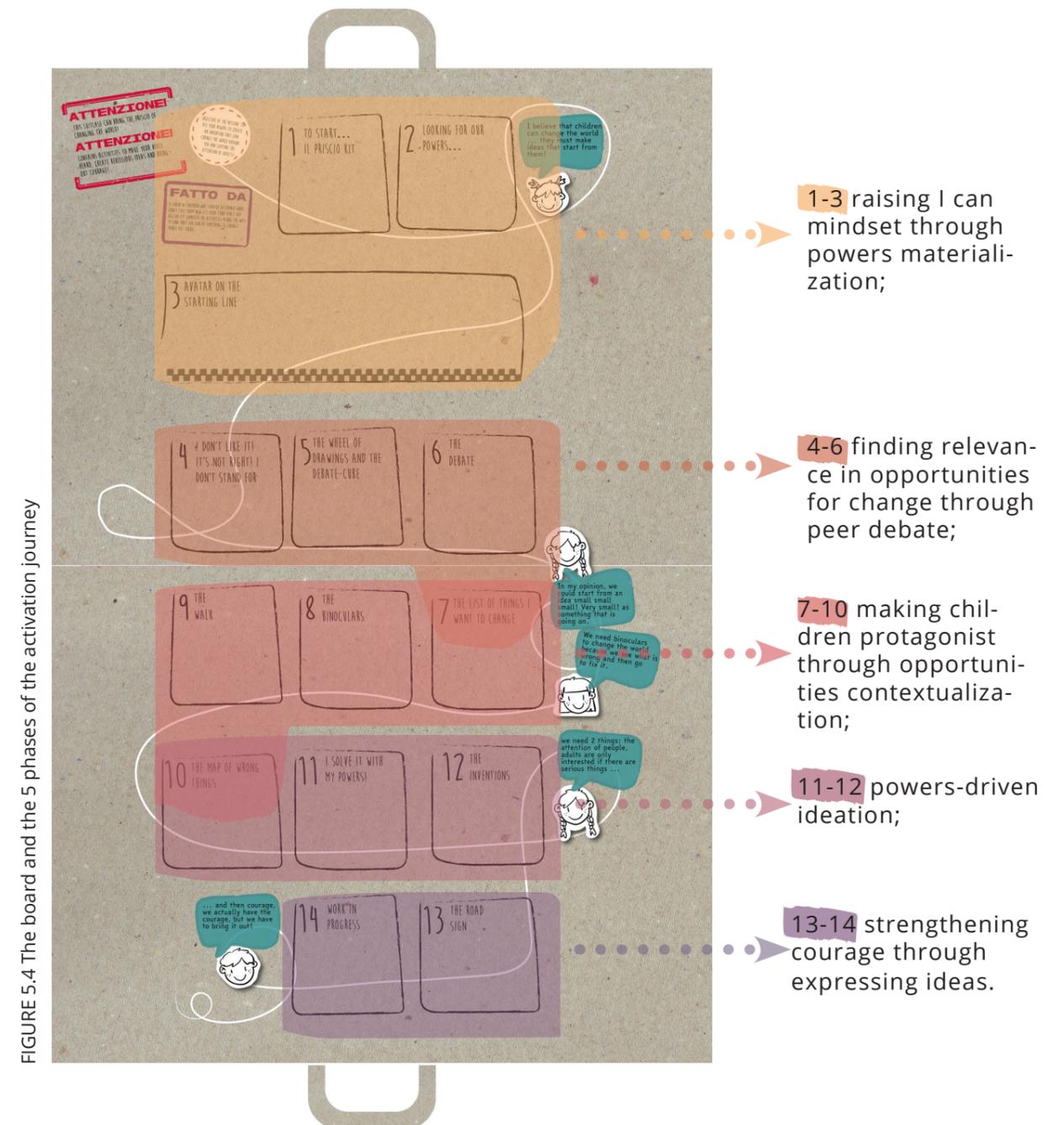


FIGURE 5.4 The board and the 5 phases of the activation journey

14 activities cards and additional materials

Card 1 | To start... The Priscio kit | The first activity card is preparatory for the whole creative journey and ask children to build their Tinkering material kit to use throughout the following activities. The activity is inspired by one of the scaffolds used during the second design intervention. It is based on the observation that most of the children already own a crafting box at home, while during the lab are provided with specific materials to use according to step by step instructions only. Beyond being an inspiring task that sparkles creativity, this activity allows children to build their own material trigger for crafting their own thoughts.



To create an invention, you need all that blends in the head, but also many materials to mess up, experiment, and build.

What shall we do? We make Il Priscio kit: a box with materials and tools that you will need to find inspiration and complete the activities along the way.

How do we make it?

- 1 Search and gather around creative and reuse material: interesting forms, fanciful decorations, objects of different colors and materials, natural elements, and components of broken games. Think of all that you can transform: build, cut, glue, paint, color, roll, wrinkle/rub, and make you want to create.
- 2 Put all these objects in one box (or if you don't have one, what are you waiting for? Build it yourself!)
- 3 Il Priscio Kit is ready! Keep it

handy, and every time you see this icon on the card, use it to complete the activity.



Card 2 | In search of our powers... | initiate the phase of raising I can mindset through powers materialization, responding to children's creative need to start from themselves. The activity focuses on unlocking a hands-on reflection on children's identity and abilities. It is inspired to "My powers" from the second design intervention, which was successful in sparking thinking about "I can". However, the current version embeds the enabler of peer support considered helpful by children to believe in their skills. Specifically, the first card suggests children pair up with a friend and build the avatar of each other, representing all their powers. The experience starts with a reflection about children's passions and evolves in the making of a puppet, passing by dialogue around the reflection or the way chose to represent the powers. The activity ends, suggesting that children position the avatars on the starting line on the board in preparation for the next activity.



Each of you has unique and special powers that you can use for change and improve what you surround: what are yours?

What shall we do? We realize our avatars to discover all the powers that we have and can use to change the world.

How do we make it?

- 1 Team up/ pair up with a friend (this friend can be both a boy or a girl).
- 2 Think of all his/her powers in everyday life, and that can use to change the world: think what he/she likes to do for others, to his/her passions, to the things he/she knows to do very well, quite well, well
- 3 If you really don't know them, talk to her or him and ask him/her to tell you!
- 4 Take Il Priscio Kit!
- 5 Build an avatar that represents your friend with all his/her powers.

6 When you finished creating, place your avatar along the starting line.



Card 3 | Avatars on the starting line | keep the focus on the I can mindset and is inspired to the disruptive willingness of children to tell about their artifacts recorded during the second design intervention. The background principle is that the narration makes explicit children materialization and reinforces their sense of pride and confidence in their abilities due to recognition from an external observer. Specifically, the activity proposes an official presentation of the artifacts on the starting line of this change-making journey and the transcription of the powers in power cards. The power cards are the additional material provided for the activity and serve to trigger the making of a statement about children's competence and to record them in view of their future use in the powers driven ideation phase. For this reason, after filling them in, the cards should be stored in the pocket of activity 11.



What shall we do? We tell avatar powers and collect them on power cards.

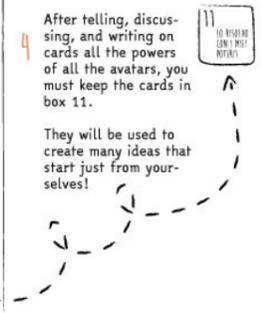
How do we make it?

- 1 Once on the starting line, in turn, tell what powers has your friend through the avatar you created.
- 2 Do you think the avatar looks like him/her? Do you believe there are other powers that he/she has? Ask and speak yourselves after each presentation.
- 3 Now, take the POWER CARDS and write down all the powers you have found, one for a

card!

4 After telling, discussing, and writing on cards all the powers of all the avatars, you must keep the cards in box 11.

They will be used to create many ideas that start just from yourselves!





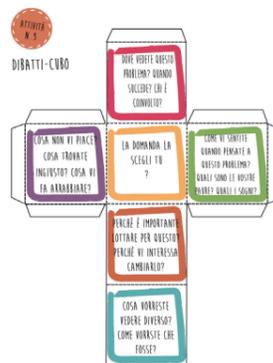
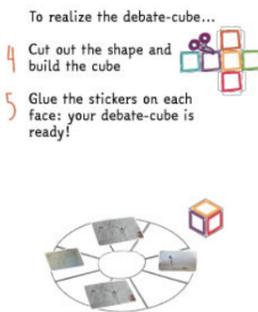
What shall we do? We draw the moment you saw, heard or felt something negative that you wanted to change around you.

- How do we make it?
- 1 Close your eyes and think that time you saw or experienced a situation that did not like, that seemed unfair to you and in which you wanted to say: "That's enough! I don't want it; I want to change it!"
 - 2 Now take pencils and colors and draw everything you remember of that moment... where you were, what happened, who was there, what you did...
 - 3 To give voice to your drawings and your thoughts of change, jump to the next box to organize a real debate/discussion



What shall we do? We organize the debate, and we take all the tools needed: the wheel of drawings and the debate-cube

- How do we make it?
To realize the wheel of drawings...
- 1 Collect the drawings you have just made and put them in a circle on the table (or on the ground). Warning: if you notice similar drawings that tell the same problem, put them close.
 - 2 Now we need an object to make rotate in the center of the circle to indicate to whom it is up to feel the own voice. Search in the Priscio kit something that can work (like a bottle) or build one yourself
 - 3 Please place it in the center of the circle: the carousel of the drawings is ready to be used!



Card 4 | **I don't like, it's not right, I don't stand for it** | kicks off the research of relevance in opportunities for change, through an activity to warm up children critical thinking inspired to the scaffold of "postcards of change", which had revealed effective in stimulating debate around children own perceptions of reality. The activity encourages children to close their eyes and remember episodes they experienced in the past in which they felt the need to take action and bring a change. After that, children are asked to picture that moment in a drawing, which will be their ticket to the following debate.

Card 5 | **The wheel of drawings and the debate-cube** | continues to trigger children's initiative to find relevant opportunities for change by proposing children to undertake a debate about the experiences that sparks willingness of change. The activity took shape based on the spontaneous debate aroused after the postcards of change enablers during the second design intervention. Children were engaged and tried to formulate their own opinions. Although the debate was rich, the conversation often ended in purposeless loops, and some children didn't find the right input to enter the dialogue. Similarly, benefits were observed in letting children facilitate each other to find relevance in the change to bring. Therefore a playful set up with triggering inspiration questions to mediate the debate was ideated. During the activity, children are invited to craft their own arena by placing the drawings in a circle, finding a spinning element, and building up the dice with triggering questions, the additional material provided. The dice offers inputs to identify children wishes, fears, dreams, unfairness and direct experiences related to their episodes of change.



What shall we do? The debate: let's talk together about negative stuff that you have noticed, your point of view, the reason why they make you worried and the reason why they interest you, to get a list of all the things you want to change.

- How do we make it?
- 1 Take your place around the wheel of drawings and spin the object in the center of the wheel to choose the drawing with which start the debate.
 - 2 At this point which has realized the drawing chosen, tells his story and decides the topic you will speak. Do you also have a history related to the same topic? Come forward and tell it.

- 3 Who told the history launches the debate-cube towards one person of the people in the circle.
- 4 The person closest to the cube reads the question on the top face and responds with a story. Then throws the cube to the next person in the circle
- 5 When everyone has expressed its opinion, circulate by new the wheel to choose a new topic and start over!

Card 6 | **the debate** | set some basic rules to perform the playful debate. To start, children take place around the drawing wheel and spin the spinning element to choose which experience of change opens the conversation with the drawing's narration. Afterward, the speaker throws the dice toward another child around the circle, who read the dice face closer to him and either tries to reply, expressing his/her own opinion or get the chance to ask a question to the group. Then the dice is thrown again to give voice to other children about the same initial topic. When the conversation around the initial drawing is over, the spinning element chose a new drawing and a new story to tell.

Card 7 | the list of things I want to change | conclude the current phase and set the basis for making children protagonists of change. This step is built upon the gap of converging moments, which are, however, necessary to establish priorities in taking action. The activity asks children to write down all the opportunities for change unveiled across the debate on the change cards deck, one of the additional materials provided. The cards are later displayed and organized on the “list of things I want to change” board from the ones that are more relevant for children to take action upon to the ones less important. This allows children to choose a focus for the following exploration.



What shall we do? Create a list of the things you want to change, starting from the one more important and from the one you feel closer to you.

How do we make it?

1 What are the things which you want to change that you have discovered during the debate? Write or draw them all on **CHANGE CARDS**.



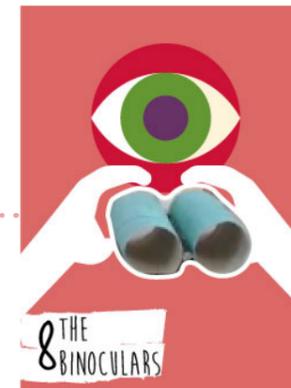
2 Now, put them on the **LIST OF THINGS I WANT TO CHANGE** and reorder them according to those that you make you want to change and feel closer to you



3 Now you are ready to explore them more closely, jump to the next box!



Card 8 | the binoculars | kicks off the phase of the contextualization of the challenges children identified to let them contextualize and relate those to their own experience. The second design intervention showed that the debate stimulated personal engagement on many subjects on an abstract level. So the activity is inspired to the desire of grasping reality, which was well expressed in one of the inventions presented by a child at the end of the second design intervention: “a binocular to first see things and then fix them”. This solution also found validation in the creative need of “starting small to act big.” Specifically, the activity proposes children to craft their own explorative tool, a binocular, with special lenses that allow them to recognize the challenges and opportunities for change debated in their own reality. The card challenges children to think of practicalities of the tool's use, such as carrying it around and taking notes during the adventure.



To start changing things that you wrote on that list, you have to explore and discover the wrong things around you, in your neighborhood, in your city, where you see them in everyday life.

What shall we do? We prepare the tools needed to explore with the senses where you see, try, listen to the things you want to change.

How do we make it? Recover Il Prisco kit: the kit of creative materials that makes you want to change things around you.



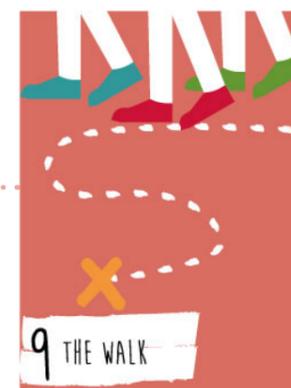
2 Build your personalized version of binoculars.

3 Remember that it will help you to see the things that are not working, then it will have a negative lens. Add all the details that can give him this function.

4 Think that while you use the binoculars, you will be outside and you will see so many things that don't

work, so prepare a tablet with sheets where you can take notes during the route/way.

Card 9 | the walk | makes children protagonists of the exploration of challenges and opportunities for change. Specifically, the activity asks children to look back at their list of topics whose relevance had been discussed during the debate and take the one on the top of the list as a reference and focus for the expedition. After choosing the right space to explore the matter of their concern, children are encouraged to explore it freely with the use of the binocular and with other senses, by collecting materials, drawing, ... The activity ends with the storage of clues in view of the next activity



Now that you have your tools, you are ready to go for the walk mission, let's go!

What shall we do? We observe, and we experience the reality that we surround to find the things that we want to change, that we do not like, that annoy us...

How do we make it?

1 Please take a look at the list of things that we want to change and choose one of those that you want to explore during the walk.



2 Decide together where the exploration will take place and don't forget to bring with you the binoculars and other instruments that you have prepared.



3 Once there, start exploring using the negative lens of binoculars to carefully observe all things

that don't work, that you don't like, that annoy you, and you would like to change.

4 Remember to take note of all that you discover and that you would like to change: you can take notes, make small drawings or even collect objects representing the problem.

5 When you have found enough things to change, conclude/end the walk, and preserve all the material collected. It needs to jump to the next box.





Welcome back, explorers! With all the information you have captured, it's time to map all things that you noticed.

What shall we do? We realize a map of problems you have observed during the walk. How do we make it?

- 1 Recover Il Priscio kit.
- 2 Delimit/define on the floor or on a table one quite large space: you can do it with a very large sheet, with cardboard, or simply with duct tape/adhesive tape.
- 3 Now, remember what you saw, experienced during the walk, reread the notes, look at what you have gathered/collected, and tell each other.
- 4 Represent every problem that you have discovered on the map: you can represent it with the objects

you have collected, recreate in 3D what you have seen, draw it...

- 5 When you have finished your creation and are sure that none of the elements you saw are missing, look at the map from above... do you want to change something? Jump to the next box!

Card 10 | the map of things that don't work | represent another converging moment necessary to organize the multidimensionality of impressions collected during the exploration. The activity invites children to put together observations; objects picked up and notes into a big three-dimensional visualization representing the details and physical aspects of the topic are debated and chosen as the focus. The activity ends by asking children to physically look at their problem reconstruction from different perspectives and with the triggering question: "are you willing to change something?" as an invite to move to the next activity.



What shall we do? We create ideas to solve one or more problems in the map using your powers.

- How do we make it?
- 1 Take "I solve with my powers" card and put it in the center to see it.
 - 2 Please choose from the map of problems, what stimulates more your creativity and put it to the right place in question on the card.
 - 3 Recover the power cards, choose one and place it in the question.

- 4 Read the question aloud, "If we use our power... to change ..) what can we invent as children?"

Release/free your imagination create as many solutions as possible and draw them each on a post-it note

- 5
- 6 When you have finished your ideas, try to choose another power card, replace it, or add it to what there was already. Do you have any new ideas? Draw them!

With all these ideas, you are ready to build! Go to the next box!

Card 11 | I solve it with my powers | open the phase of powers-driven ideation, which supports children in shifting from "seeing things" to "fixing them" and in creating the "small ideas" aligned to their creative need of "starting small but acting big". The activity is based on one of the most effective enablers that allowed children to play a protagonist role in the ideas and solutions they were proposing during the second design intervention. It consisted of enriching the free ideation with the triggering question addressed to the children, "how can you solve it with your power?". This also reinforces the I can mindset by giving children the chance to think of their abilities as practical resources to use in solution making. Specifically, the activity entails the use of the dedicated board to propose a customized triggering question combining a selected issue or opportunity from the map with one of the children's power. Children's ideas are generated in response to the question: "what if we use (a power) to change (specific issue)?" that can be formulated by placing on the board one of the power cards and one of the symbols taken from the map. All the ideas drawn on the board serve as the basis for the next step.



What shall we do? We transform the ideas you had in something that you can create and touch

- How do we make it?
- 1 Choose the ideas that you make you want to realize more: for example, you can vote for the ideas and choose the most voted or put together more ideas.
 - 2 Take Il Priscio kit!
 - 3 Think a bit about how you can make them real and start turning ideas into concrete things, in 3D objects
 - 4 After completing your inventions, reflect: "Can

you show them to the adults out there? But especially how do you feel to have designed something which can change the world?"

Card 12 | the inventions | complete the power-driven ideation and move from the observation that the attempt to build a physical solution encourages children to slowly detach from their idealistic ones. The card invites children to turn their ideas into interventions that can be "used and touched". To perform the activity, children are suggested to start from one of the ideas developed previously and make use of the tinkering material kit, envision it tangibly, and build it. At the end of this, stepchildren have developed "the wise ideas" they need to "be heard and supported by adults."

Card 13 | street signs | kicks off the last phase of this activation journey to strengthen children's courage by sharing ideas. The activity fulfilling children's needs of catching people's attention and growing bravery is ideated on the basis of children's opinions regarding what adults consider worth of attention, such as "serious stuff like money and numbers". Following this thinking flow, the more appropriate platform to allow children to spread their solutions takes the shapes of a personalized street sign, which is likely to be noticed by adults. The background idea is to create work in progress signs that notify the community about children's intention to create new interventions and send messages about those to the community. Specifically, the activity entails recollecting the ideas and solutions invented in the previous phase and eventually chose the one to share and create a message for it. Then using the additional street signs boards provided, children can craft their own street sign where to display both the idea and the message. When the signs are ready, children are invited to move to the next activities.



Now that you've built your ideas, it's time to capture the adults' attention and send them a signal of the change you want to achieve! But adults pay attention only to serious stuff so...

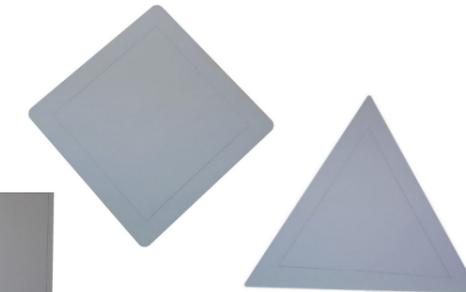
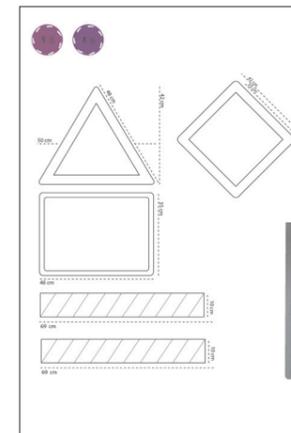
What shall we do? Something serious! We create work in progress signs to show to adults our ideas and that we are working to achieve them.

How do we make it?

- 1 Collect all the inventions that you have created and the ideas that you came to mind. Which ideas do you want to share with adults? What message do you want to send them?
- 2 Choose the signal shapes that represent the most the message you want to send, personalize your signal, and color it like the ones you see when you're in the car with mom and dad.
- 3 Then represent on it your idea or invention (you can paste the one you have already made or create

a new one)

- 4 Add the message you want to send to adults... don't forget to add your names, inventors of change!
- 5 When the signals are ready, skip to the next box.



Card 14 | work in progress | conclude the initial activation journey with the public demonstration of placing the street signs in the action points identified by children. This is ideated to fulfill children's need to practice courage and is based on children's natural performative inclination. The activity starts from looking back at the map to identify action points where to place the signs and invite children to undertake a new walk for spreading street signs and their interventions around their community.



We have the ideas, the inventions, the signals, we can pull out the courage. Come on, let's go!

What shall we do? We place the signals where we want to see realized our ideas of change. How do we make it?

Do you remember where you saw the things that don't work? Take a look at the map of the wrong things.

- 1 Choose where you want to place the signals, where you noticed wrong things, or maybe where you desire your ideas or inventions are realised.
- 2 Take the signs and leave for this new mission! Fix them and make sure they are clearly visible to those who pass.
- 3 After fixing them, stop observing the passers-by, explain to them your ideas, and not be discoura-

ged if they don't understand them immediately, the adults need time to understand.

- 5 When you go away, leave signals where you put them! They will continue to give voice to your ideas!

DESIGN
RESEARCH

design : toolkit for
positive changemakers

cycle 3

6

Design
intervention 3:
testing the toolkit

6.1 Goal of the test

The toolkit was immersed in the context of the UCN association and handed to children and educators to check their experience of use in the field and the response to the proposed activation journey.

The test was set up as a third design intervention, continuing the path children had started in the previous one.

Therefore, the tool kit was tested only partially, focusing on performing the activities between 7 and 14. This choice is driven by two main reasons for the tool's intrinsic nature and timing.

The tool design includes a set of activities that are partly an iteration of the ones experimented in the second design intervention and partly newly ideated based on the unveiled activation creative needs formulated by children in the previous phase. Therefore, it is worth prioritizing the test of the latter.

Moreover, the tool's intrinsic nature entails children undertaking a long-term process and requiring an extensive and relaxed period.

Based on the course of events and timing of the second design intervention, an optimal compromise to test the flow of activities in a natural setting while keeping the testing time within the project frame is found in focus on the activities seven till fourteen.

The test aimed at exploring the overall toolkit experience and the interactions with the children and consequently to analyse how it fulfill the activation goal and the type of action it enables. The full list of reasearch questions guiding the tests can be found beside.

The testing experience and the opinions and practices from children and educators collected afterwards allow the evaluation and assessment of the toolkit based on the design requirements.



Research questions

RQ1: How is the overall tool experience? how do children perform the activities?

RQ2: How do children interact with the tool?

RQ3: How do the design of the tool (activities cards and additional material) support the performance of activities?

RQ4: Which solutions do children envision?

RQ5: How does the tool support children in undertaking the activation journey?

RQ6: How does the tool fit in UCN children association practice?

RQ7: Which impact does the use of the tool has on the community?

6.2 Test set up

PICTURE 6.1: Children ready to test the tool experience



6-11 y.o.



21 children

Participants

The tool was tested within the intended context of use, the weekly afterschool meeting of the UCN children association. Therefore a varied group of 21 children aged 6 to 11 years old interacted with the tool and participated in the related activities. As discovered at the end of chapter 4, the group's composition varies throughout the meetings according to children's participation. This is also the case of the tool testing that happened across multiple sessions. Moreover, the group mainly consists of girls as the non-formal offer of the association is seen locally as a "girly entertainment"; however, the shift from online activities to in-person ones allowed more boys (who didn't have access to digital means) to join. Most of the children participated to the second design intervention, so they were sensitized and engaged with the project topic, which allowed the possibility to focus on specific activities while keeping continuity with the overall tool activities flow and intention. During the testing sessions, children were supported and supervised by 3 educators, while the researcher was not present during the test to keep the integrity of the typical activities set up of the UCN association.

Procedure

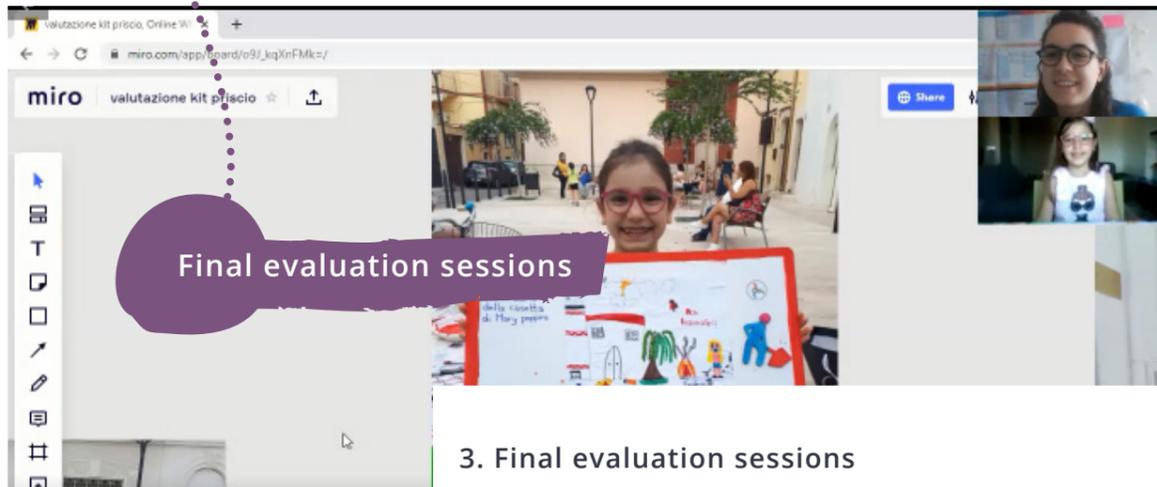
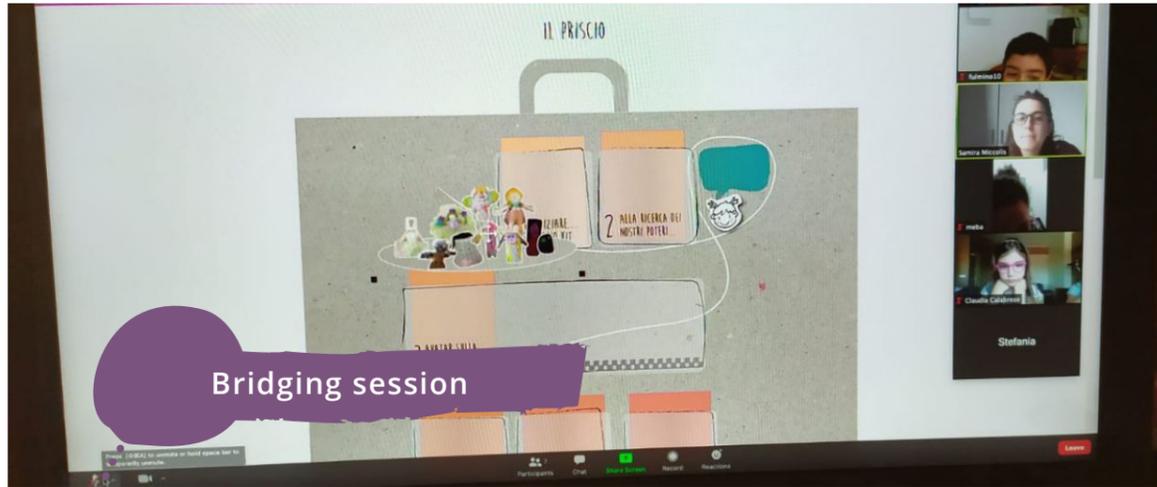
The testing procedure included three different moments.

1. Bridging session

Initially, a bridging moment was considered necessary to allow a smooth transition from the second design intervention, carried out in a blended online-offline set up to the third one, mainly happening in person. The online session facilitated by researcher and educator, aimed at recalling at children memory the significant steps of their own activation journey and the main outcomes they obtained. Specifically, after introducing the digital version of the tool to children, the abilities they materialized in their avatars and the main opportunities for change identified through debating are translated and transcribed in the Power and Change cards. Through the preparation of materials which will be used during the tests, this step fills the gap with the initial activities that lies outside the testing scope. To conclude the session, the first activity to be tested was launched, and children read out loud the activity card 8, The binocular, and started wondering how to perform it.

2. Testing and taking action sessions

After the virtual launch of the tool and first activity, the further tool testing was organized in multiple testing sessions embedded in the weekly meeting of the UCN children association as thematic lab, on the wave of the successful online lab format used for the second design intervention. A general outline of a plan to follow and overall suggestions on how to carry out the activities were given to the educator; however the management and approach to the tool use was left to the association to preserve the spontaneity of the real life conditions, considering that the tool fit in the UCN practice is object of the research question 6. All the testing sessions were carried out in person, in the public space around the UCN children center.



3. Final evaluation sessions

At the end of the overall testing experience, 4 evaluation sessions were carried out with the educator and 3 of the children who used the tool. The evaluation session was set up as an individual virtual interview in 2 phases: the first was dedicated to a visual and spoken narrative of the tool experience. The second one focused on a semi-structured conversation around the requirements and future tool improvement

PICTURE 6.2: Procedure

Prototypes

To be used across the different types of sessions, two different prototypes of the tool were created. For the bridging session, the toolkit was digitalized in a website displaying both the board and the activity cards. It was necessary to introduce and show the tool to children and the launch of the first activity to be tested. In addition, to let children fill in the Power and Change cards in preparation for the tool field use, a digital version of the cards was prepared on the digital whiteboard MIRO, as shown in FIGURE 6.2, and shared with children the session.

In the testing/taking action sessions, children and

FIGURE 6.2: Digital version of power and change cards

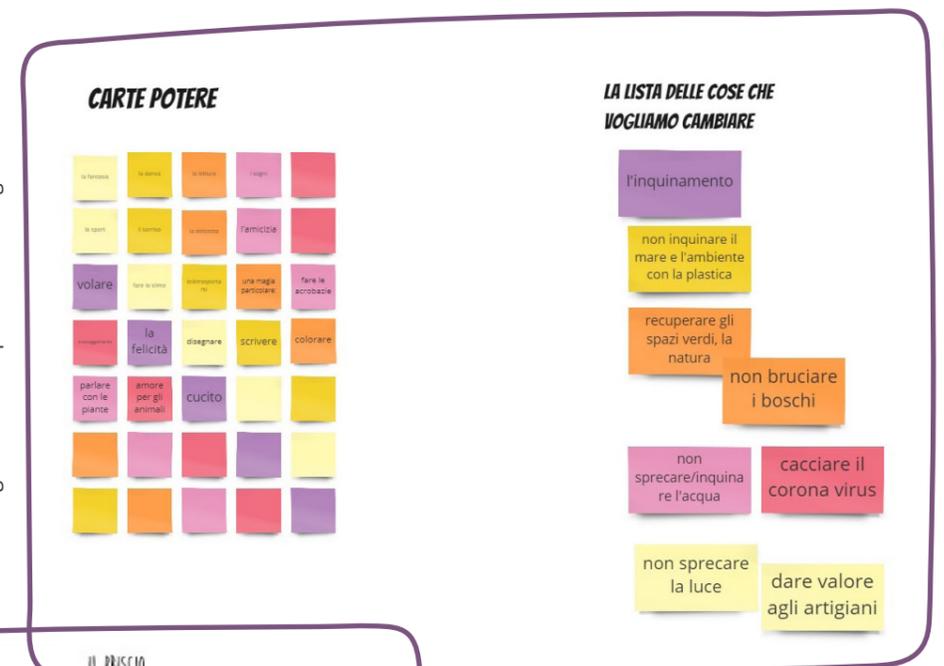
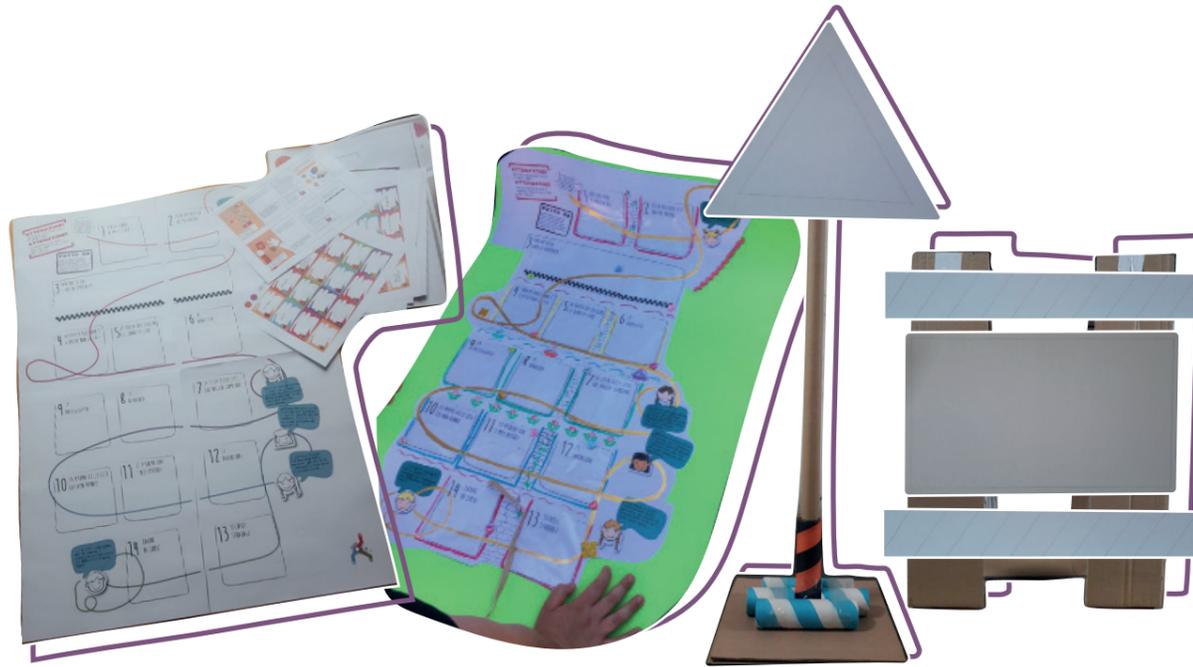


FIGURE 6.1: Digital prototype of the toolkit



PICTURE 6.3: The Board and the street signs



educators used a mix between the DIY and the physical version of the tool. Specifically, the board and activity cards were delivered digitally to the association, that provided for printing. While the additional materials supporting the activity 13 and 14, the street signs templates, were prototyped locally and delivered physically to the association. In this specific case, the DIY mode would require more significant effort and longer preparation time for the tests from the educators who were already busy setting up the sessions according to the new social distancing regulations.

Data collection

As the researcher was not present during the testing sessions, the tool experience was documented through photos and videos shot by educators during and at the end of the activities, to record the fundamental interactions and the primary outcomes.

Moreover, considering that the testing sessions spread over a period longer than two weeks, multiple “after tests” video calls were arranged with the educator right after the meetings, to gather fresh memories of the experience. The narration of the overall activities flow was also retraced in the final evaluation session from the

voice of both the educator and 3 children.

To structure the data and memories collection and cover all the research questions, the sessions were facilitated through interactive templates designed on the digital whiteboard MIRO. The template for the “After tests” session shown at FIGURE 6.3, consists of a multilayered timeline: each layer is respectively dedicated to the reconstruction of the activities flow as performed by children, the specification of the steps conducted within each activity, the use of each additional tool material and finally the outcome produced by children within each activity.

On the other hand, the evaluation session’s visual and verbal experience narration was supported by a photographic timeline. The one for the educator was prepared by reorganizing all the pictures gathered, based on the quick data analysis. Simultaneously, the children’s version was simplified and personalized on the participant interviewed by choosing only pictures showing the child involved in the key steps.

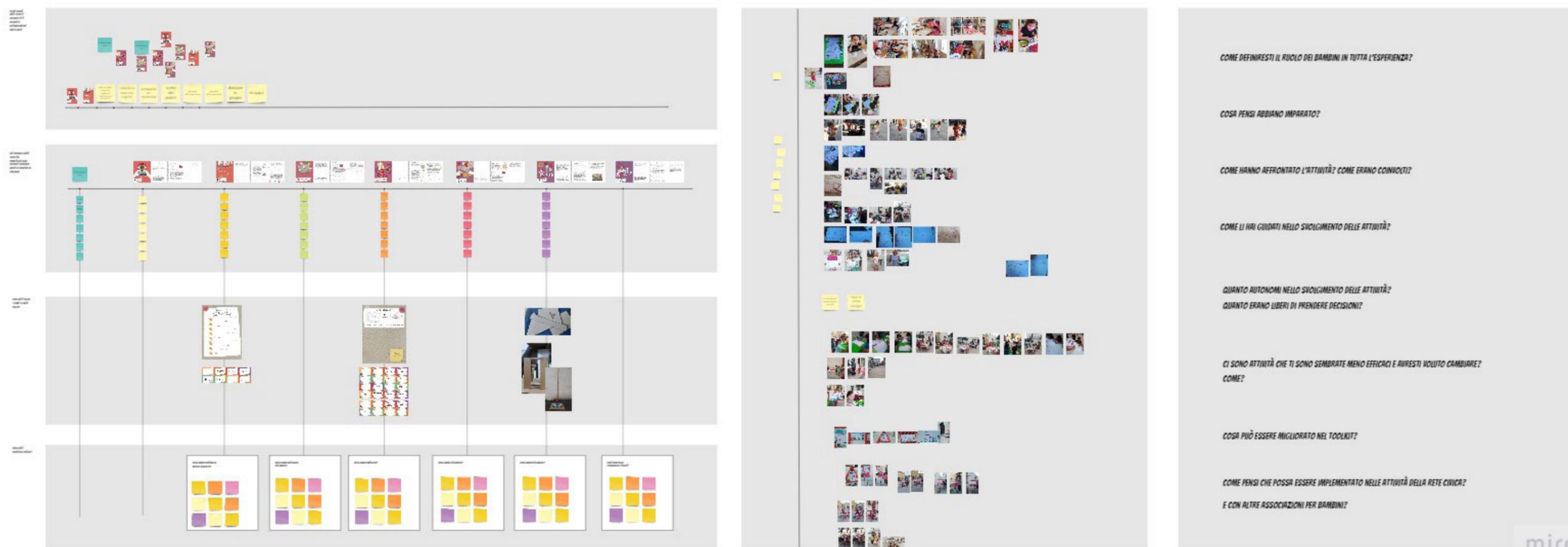
Beyond the visual and verbal narration, the evaluation was carried out by structuring the conversation around the main topic relevant to the requirements assessment. Specifically, the educator was invited to discuss children’s role, involvement, and autonomy throughout the activities, the type of guidance and support she offered, the room for improvement and change in the tool, and the possibilities of implementing the tool in the Urban civic network. On the other hand, children were asked about their feelings and impressions during and at the end of the activities journey. The tool impacted their abilities, courage, and community, the positive and negative aspects of the tool, and the elements or activities to modify.

All the virtual sessions were audio and video recorded under participants consent.

Data analysis

Due to the prolonged testing period, a first analysis of the data was conducted on the go, when collecting and viewing pictures and videos sent by the educator. A deeper analysis was performed before and after the evaluation sessions by listening and transcribing the relevant quotes of all the audio recordings. The template used during the course was further utilized to structure the data analysis, as well as the preparation of the photographic timeline, served as a way to visualize the tool activities flow and as a memory trigger to employ during the evaluation to confirm the researcher's assumptions.

FIGURE 6.3: Template for data collection and analysis



6.3 Results: answering the research questions

RQ1: How is the overall tool experience? How do children perform their activities?

Even though **activity 8 | the binocular** was launched during the bridging session, inaugurating the start of the tool experience, the first activity children undertake to construct the toolkit itself. After receiving the digital version of the tool and printing it, the educator decided not to build it herself and present it to the children as a final product instead of involving them in its preparation. Children cut the activity, power, and charge cards to decide how to shape the board. They expressed their wish to further personalize it by adding a thread along the line indicating the activities flow and several stickers and stamps. After dedicating part of the first meeting to the tool build-up, the remaining manufacturing required was performed by one of the educators, according to children's instructions and desires.

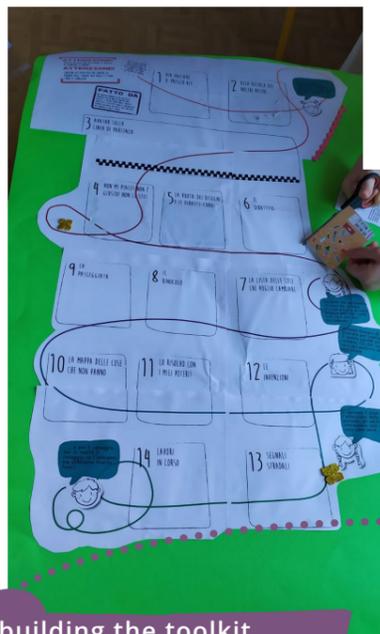
In parallel, while crafting the tool, children were enthusiastic about recognizing everyday activities. They felt the urge to tell the newcomers, who didn't join the second design intervention about the avatars and all the things that happened in the online lab. To better explain the activities and push by curiosity, they read through the first 8



activity cards. They were excited and willing to try out the debate one, but the educator refocuses the attention on the binoculars.

Since its online launch, the activity caught children's interests at the point that most of them completed their artifact before the first testing session, and they started using it to observe what doesn't work around them and in their pathway from their home to the UCN center. However, the binocular crafting was extended during the first testing session to give the children the chance to prepare their own tool for the next explorative walk. In the meantime, the children who had their binocular ready took time to make it more "powerful" by personalizing it or focused on crafting the tool board as they had seen it in the virtual bridging session.

Paint, glue, and glitter on the binoculars were let dry for the duration of another UCN event aimed at crafting a small notebook. When asked, children mentioned they would have used it to take notes during the explorative walk. The second testing session moved from **activity 9 | the walk**. The set up prepared by the educator with all the binocular ready on the table immediately sparked children's initiative. However before diving in the exploration, the tool board also displayed on the table triggered a recap of the journey, so that all the children including the ones who joined the testing session for the first time, were on the same page. With the binoculars in hands, children spread across the square and



PICTURE 6.4: visualization of the overall tool experience

in the streets nearby and started scanning the environment in search of all the details they didn't like and found unfair. After an initial exploration and intending to write down all the issues on their handcrafted notebook, children organized themselves to alternate the discovery with the binoculars with the return to the "notebook" table to report the results of their observation. Besides the negative aspects, some children decided to record the positive ones on a dedicated page.

When it is time to move on to the next activity, the educator tries to introduce business 10 | **the map of wrong things**. However, the activity doesn't match with children demands of that moment as their mind is already engaged in an intuitive problem-solving for the issues noticed. The deep dive into such a solution making debate makes clear that the visualization and converging role of the map had been replaced by the filling in of the notebook.

With the board visible during the activities, children knew their goal was to come up with an invention and inpatients to reach it. Therefore the debate around feasible solutions for the negative aspects identified was very lively. At this point, the educator decided to go along

binocular set up



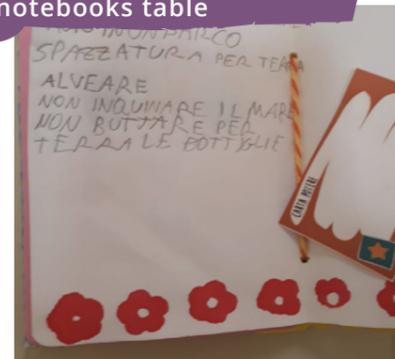
recap of previous activities



activity 9 the walk



notebooks table



power selection



with children flow and introduce **activity 11 | I solve it with my powers**. Launched more spontaneously through the educator question: "do you remember we talked about your powers?", it was approached as a selection of the power cards and related powers that could have been useful to develop an invention. Some powers were immediately discarded by children as considered useless. At the same time, most of them were analyzed and triggered quick ideation about the invention they could enable to understand which invention could have been invented with that power. The reinterpretation of the activity and the quick ideation made children realize that the small issues identified belonged to the same cluster: "adults disrespectful behavior towards the environment, the public space and the rules in general". Therefore the debate around powers selection was gradually reframed into how the powers could be used to have children voices heard and share the right attitude with grown-ups. The memory of their abilities helped children to come up with different solutions, while a spontaneous debate helped them focus on one specific idea to bring further. In the overall enthusiasm, children expanded the ideation to making practicalities, by thinking who could have helped them and where to buy materials.

Only when the idea of crafting some signboard to share thoughts with adults was implicitly recognized as worth pursuing with children's artistic skill set, the activity 10 | the map of wrong things, was reintroduced to children.

They interpreted it as an occasion to recap the issues and prepare a plan of action points, the location where to manifest their action through the boards. Inspired by the recent rediscovery of powers, children decided to split into smaller teams according to their abilities:

- the project team was leading the map-making and offering support to the other teams if needed;
 - the explorers team, who master the power of sport, was responsible for repeating the issue localization through binoculars observation and take measurements of places and objects to report spatial references in the map;
 - the drawing team was in charge of drawing the map under the direction of the explorer team
 - the color team was coloring the drawing once ready;
 - finally the (copy)writing team was writing down the issues reported by the explorers either on the maps or as a list of messages to send to adults, to use for the making of the boards possibly.
- Despite the availability of cardboard, sticks, and a few other crafting materials, children tried to create a physical map. Still, they missed joints amongst the elements so considered more practical and less demanding to make drawings instead, also taking into account the restricted space on the tables and the impossibility to work on the floor (Covid-19 regulations).

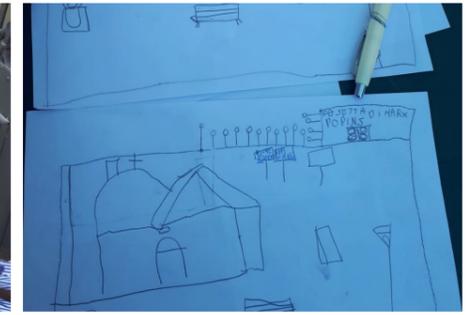
Children took the map task very seriously and sought precision in the representation of the



the map team division



drawing and color teams



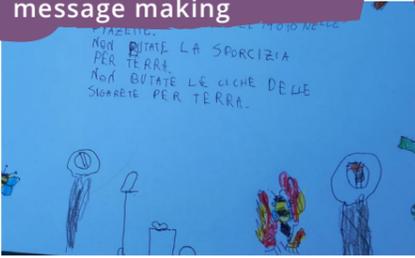
the invitation flyer



space as “to be listened to you have to be precise.” Moreover, while some children were highly engaged in the creation of the maps and started drawing multiple copies to hand out to adult passer-byes to sensitize to better behaviors, other few kids disagreed on being all busy on the same task and took their own initiative: the design of an invitation flyer to involve other children to join their action, which was photocopied by the educator.

The starting point for the following testing session was the additional materials provided for **activity 13 | the street signs**. As the solution ideated by children matches with the making of board signs, the **activity 12 | the invention** merged with activity 13 in a big street sign manufacturing event. The activity is approached very experimentally with all the board templates and pieces displayed in the square and children trying to assemble them intuitively. The educator provided few explanations on their use, and once again, children decided to split into teams. The curiosity for the part of the new material of the tool pushed children to start from painting the street signs boards as if they were real ones; then, a smaller group focused on the messages and drawings to place on them. To elaborate

message making



ashtrays invention



painting street signs



those, children retrieved the maps and sketches they made previously and started turning them into illustrations addressing each of the issues and communicating to adults right and wrong behaviors "in children's own way." While drawing their solution for the cigarette issue some children, especially the older ones, realized they had a power they didn't think of: modeling clay. So they set up a new team for prototyping their own version of ashtrays to match with the dedicated rule board. Unlike the previous team division, children switched from one team to another quite often to contribute to graphic, painting, and modeling. When the artifacts were ready, children placed the boards to dry in the sun, spreading them across the square, which attracted people's attention and raised questions on their activity. Children were not scared to answer:

"W
WE

As the last step, the street signs were assembled with the educators' help to make them stable with strong glue and further personalized with the application of natural symbols to sensitize to environmentally friendly behaviors. The

enthusiasm for the completion of the street signs was celebrated with their display in the square. When looking at the result of their work, children gave up their ideas of adding flyers to each sign to make adults commit to their rules and ideas by taking them home. On the contrary, they were impatient to place them, following the instructions of their maps. Furthermore, they decided to involve the dogs; they usually spent time within the Pet therapy meeting in the street sign placement.

In the final testing session, the street signs were placed in different locations across the square, considering where they could have been more visible and attractive. Due to the nature of the issue tackled and the message mentioned on certain signs, children expressed the wish to have them placed outside the context of the square, in a park they normally attend and on a bridge connecting two suburbs facing a big abandoned green area.



assembling street signs



activity 14 work in progress



street signs party

RQ2: How do children interact with the tool?

Children interaction with the tool evolves along the advancement of the activities.

At the beginning of the experience, the DIY version of the tool reveals the benefit of enhancing a sense of ownership and attachment to the tool through the active involvement of children in its creation and personalization. To this purpose, it is also relevant to notice that the incompleteness of the materials provided enabled children to adjust them to their needs, interpretations and forms of expressions. For instance, they proposed a different design for the tool board, a portable roll rather than a flat folder. Similarly the minimal design of the street signs allowed children to use them beyond the intended use as a platform for ideas sharing only.

After its preparation and personalization, children used the tool as a written guide, visual activity trigger and goal and journey compass.

Initially children started each activity by reading out loud the activity cards, asking explanation to the educator when necessary and then diving deep into the experience. However the direct interaction with the tool and this practice faded along the process, as the educator proposed a more improvised facilitation, while children felt familiarized with the process and felt they knew what to do intuitively without step by step



PICTURE 6.5: Children's interaction

instructions.

The physicality of the additional materials, the graphic of the cards and the self built tools such as the binoculars represented a tacit form of guidance and enhanced this intuitive understanding of the activities. Specifically the interactions with the self crafted tools were very natural and more powerful because their purpose built up in children's mind during their making. On the other hand the interaction with the provided ideation board, for instance, went undernoticed as it detached from the intuitive flow the group was following.

The board with the activities path was kept always visible throughout the experience and used as a reference and trigger for the steps to take afterwards. The request to keep the board well in sight doesn't depend on its role as journey compass only but it is motivated by the recognition of its showcase function, to exhibit the project and demonstrate its validity .

In line with this, the need for personalization of the tool emerge stronger in the final part of the experience, during the use of the street sign boards templates. Children want to be recognized as an active group, initiator of the performance, so they add the logo of their association and their signature "children from Mary Poppins house".

RQ3: How do the design of the tool (activities cards and additional material) support the performance of activities?

Although the tool experience often detached from the tool itself, the tool board with the activities cards is considered essential for the activities performance.

"It is a fundamental point. On a visual level, children want to remember the journey; it makes tangible the abstract of what has been done." (educator)

The instructions contained on the cards are defined clear by the educator who mentioned that children were responding immediately after the introduction of the activities. However, when

asked about the possible use by other groups of children, one child mentioned, “if they don’t have a teacher as a support, they can’t do it. Or they must be older children”. This, together with frequent intuitive and improvised mediation by the educator, confirms the ambiguous and non-self-explanatory nature of the cards. The openendedness of the steps provided didn’t allow full autonomy to children but left the room to take their initiative within the specified goal frames. Combined with children’s intuitive, creative process, the open endedness also ignited a practice of gut feeling and scarce adherence to the activities steps, which could offer further support in unlocking creative expression, such as during the ideation phase.

With open-ended tasks and intuitive flow, the material is often introduced to children as a trigger for the start of the activities: “I used Montessori approach a lot, showing materials and seeing what came out from children, observing them while pretending not to do so”

However sometimes the materials provided are too rough to stimulate an effective response, such as in the case of activity 10 | the map of things that don’t work both educator and children expressed the desire to have more tridimensional and easy to assemble components to visualize the outcomes of the exploration walk. Similarly, the board for facilitating the powers driven ideation lacked some physical and visual hints triggering the activity. On the contrary, the street sign templates, aligned with the intuitive intention and a clearer physical affordance, offered a more precise action trigger.

By remaining on a practical level, the similarity in the color and visual style of change and power cards generated confusion at the moment of using them.

RQ4: Which solutions do children envision?

With the binocular and walk experiences, children identified many small issues related to 2 main clusters: pollution and environment and care of children public spaces. Specifically, for the first

one, children noticed the high amount of trash and cigarettes on the floor of the town, in the parks and in the sea, and some toxic fires that started in the green canyon amongst the suburbs. On the other hand, the exploration enhanced and made explicit children bond with space by highlighting acts of wild parking, dangers in the urban equipment, and nature vandalism. Due to the action scope of the exploration restricted to the space of the square, children focused on every small detail. However, in the “things to change” notebooks, children reported both small challenges and bigger issues such as the toxic fires mentioned, noticed by using the binoculars independently, from home, or in the home-association center path.

Despite the specificity of those challenges, the solutions envisioned by children focused on a more abstract level, as during the ideation, children recognize the challenges common patterns in the adult disrespectful behaviors and bad example and in need to communicate them thoughts.

In line with this problem framing, children come up with intuitive solutions:

- setting up a performance event in the square to communicate their messages through a show in which dance combines with sign language. At the end of it, their thoughts would be repeated by the voice of important local personalities such as the mayor, the priest of the local church or even Mary Poppins (from the name of the children association center). This last option was discarded when realizing its suitability for a young audience only.
- creating a proper children organization actively engaged in environmental challenges, starting with designing and handing, put flyers to convince everyone to join and help in taking care of nature and spaces.

The final idea children developed was a combination of 2 solutions approaching both the overall problem as framed and one of the main specific issues identified: the creation of a series of board signs to share children’s rules with grown-ups. All

PICTURE 6.6: Similar colors of power and change cards





PICTURE 6.7: Street sign messages overview

the signs have a slot for placing flyers showing the same sign message, that adults have to take and carry with them to commit to the rule. The signs tackling the cigarette issues will have a ash-tray instead. The message on the board sign is designed visually with illustrations showing the wrong behavior's effect or the right action to perform and with written advice.

RQ5: How does the tool support children in undertaking the activation journey?

Raising I can mindset through abilities materialization was quite successfully performed by linking children's abilities representation with the chance to use their skills for solution making. Practically the powers identified with the avatar creation were collected and proposed as primary inspiration sources for developing ideas to tackle the challenges identified. The recollection of powers along the creative journey helped children play the role they felt more aligned with their capacity across the activities. This aspect, combined with the direct experience of the challenges, stimulates children to consider themselves as the makers of the solutions they proposed and seek help to cover missing expertise or have their solutions look real and serious. Despite this, the

ideation and the next solution finalization were limited by scarce confidence in mastering the powers to the point of practice using them. The street sign templates fulfill the need for expertise and overcome the feeling of "I can't".

Giving children decision making power by making them protagonists of the challenge and the solution entailed a contextualization which was mainly performed through the binoculars and explorative walk activities. This allowed children to recognize the issue debated in their realities.

"It was like having scanner glasses... someone said "I'm going to explore without binoculars" and came back without having found anything, then returned with the binoculars and found 50 more things."

The experience also unlocks new perspectives and perceptions of children's surroundings, which started to be mentioned in their speech and later on the street signs as children spaces. The contextualization allowed children to choose their focus and their action points.

Sharing ideas with the community to practice courage is performed, providing children with the street signs templates as a communication platform. Children recognize them as useful sharing tools, severe enough to be noticed by adults, and less ashaming than a direct dialogue with a stranger.

"The road sign screws you (adults), because you think it's true, but then you realize that children did it... and it creates a filter that allows me to say things..."

Beyond the final purpose, the link with the community and courage are stimulated throughout the whole tool experience, making children active makers in the public space and attracting people's attention and support.

"The nice thing was the adults passing by, asked "what are you doing?" and children replied "nobody listens to us here, so we are making signs to tell adults what we think"

RQ6: How does the tool fit in UCN children association practice?

The tool activities totally blended in the current practice of the UCN children association. The activation journey phases split in smaller steps proved to be compatible with the weekly association calendar and easy to fit in the meeting period in different combinations. Although the educator read the activity cards in advance and used the DIY version of the tool, the preparation time was considered feasible. The involvement of children in such preparation resulted in beneficial. The educator's alternation of crafting and thinking moments was considered essential and was positively welcomed by children. Even though they are generally busy in highly guided crafting, children were engaged in the activities and created moments for debate when necessary. The educator approach based on offering children the tool materials and additional crafting ones is not always sufficient to trigger the expected response.

RQ7: Which impact does the use of the tool has on the local community?

The educator's first impression is very positive, as she refers during one of the feedback sessions:

"The locals are delighted because children are given a chance to express themselves."

Passerby is curious, asks children explanation, and even helps them moving the pieces of the street signs or assembling them. Also, the parents are very supportive of children's initiative, and one

of them offers her availability to bring one of the signs in the park where children envisioned placing it. However, the wake of enthusiasm is interrupted by a negative episode of vandalism addressed to the street signs, a few days after their positioning in the square. Overnight some of the drawings were ripped from the boards. The episode is not new to the association that had been targeted by similar attacks in the past. Children were therefore encouraged to make new better drawings to strengthen the power of their message. The resonance of children artifact didn't limit to the physical public of the square or the other action points. The educators and parents took pictures of them and even shared it with civil servants to request further explanation about the children of the toxic fire had reported.

In response, children were invited to meet the city councilor from the Solidarity and inclusive City Department. Children brought the tool suitcase with them, which was used to explain here the whole journey undertaken, the small notebooks with the challenges identified, and a street sign which was gifted as a symbol of children's action. The issues and the solutions proposed by children were discussed, and the city councilor promised to support children in solving the problem that lies outside their action scope. Finally, children received and signed a certificate that attests to their civic engagement.



PICTURE 6.8: Children meet the City councilor



Requirements Assessment

Based on the combination of tool experience in the testing sessions and data collected during the evaluation sessions.

Change by design

The tool should be conceived as a change by design tool:

R1 The tool should make use of design techniques to encourage problem-solving and solution ideation aimed at making a change related to prosocial issues meaningful for children and surrounding them.

R1.1 The tool should be suitable for novice to the design processes.

Empowering journey

The tool should support children in their self-activation journey, specifically in:

R2 Building up children I can mindset by raising awareness of children abilities and their potential in solution making.

R3 Gives them decision-making over the identification of the challenge and the action to take by making them protagonist of the challenges they identify and the solutions they propose.

R4 Being actively involved in the community by practicing courage of sharing their ideas and getting people attention.

Change by design

R1/R1.1 The tool encouraged children to make a meaningful change for themselves and their surroundings by proposing them design-based activities without technical language. They were embedded in the frame of a narration of change based on children's intuitive activation journey. Children and educators successfully used the tool to novice to the design process. However, the ideation and solution-making phase was affected by the intuitive flow, which brought to a scarce adherence to the activity steps. This practice made the enablers integrated in the intuitive activation journey less effective and didn't offer children the support to switch to a more positive and creative change, rather than a communicative one.

The lack of materials to experiment with also limited the ideation phase.

Empowering Journey

R2 The build-up of children I can mindset was performed by linking through the powers cards the abilities identified and materialized in the avatar experience to their practical use in the making of the invention and street signs. Those activities acted as an initial springboard for the development of I can. Children recognize and use their abilities to play their own role in the journey but don't feel confident enough to master them for finalizing their ideas. The tool offer them material support to overcome the I can't coming from their abilities distrust. Overall children mentioned they gained learnings and new powers to add to their avatars throughout the experience:

"I had the feeling that with imagination, you can manage to do everything, even beyond imagination itself... Now (at the end of tool testing), I have the power to see things and the imagination that has become explosive."

R3 The freedom of decision making over the challenge to tackle, and the solution to propose was guaranteed by the nature of the tool that set open goals to be filled in with children's choices. The test showed that building their own tools to experience reality, such as the binocular and the map helped children acting purposefully and eagerly toward the goal: spotting opportunities for change and choosing their own action point. In this phase, the educator felt that children were especially the protagonist of both the context and the process they were following. This was limited during the ideation due to a lack of confidence in their skills.

R4 The training of courage to share ideas is supported by the street signs platform unanimously recognized by children as an effective communication tool to reach adults and be brave. At the same time, children noticed the platform's limitations, such as the context-dependent audience, propose an improvement of this communication system, and seek connections with channels that could spread their messages even further.

Child-led

The tool should facilitate a child-led creative process, meaning that:

R5 The tool should support children intuitive, creative process with activities open-ended enough for children to express freely, without imposing predefined roles and complying with children natural inclination.

R6 The tool should address children directly with a language suitable for them to reduce the power relationship and competence gap with adults.

R7 The tool should allow children to go through the creative process without excessive conditioning from adults, balancing between adult initiated and child-initiated activities.

Practical and contextual factors

R8 The tool should be physical as the target group is not familiar with digital mean, which doesn't convey trustworthiness and a sense of achievement of the overall goal.

R9 The tool should be suitable for use in a large group of children.

R10 The tool should be modular to adapt and fit within the current practice of the UCN children association, sticking to the alternation of crafting and thinking moments.

Child-led

R5 The test of open-ended activities in the frame of children's intuitive activation journey showed that children easily recognized the steps to perform by looking at the tool materials set up or introduced by the educator or at the self-crafted artifacts. The Intuitive flow made easy for them to keep in mind the final goal and aim at it directly, with the risk of skipping activities that could offer support and spark further creativity. The open-ended structure of the activities gave children the chance to choose which role to play based on their own inclination and to support diverse initiatives raising across the process.

R6 Despite the use of the same language style used in the second design intervention, the activity cards, easily read and understood by children, cannot be considered self-explanatory at the moment of performing the activity and require the educator mediation. The additional materials and self-crafted tools showed potential as activity triggers.

R7 The educator defined the role of children throughout the tool experience as the protagonist.

"they were very protagonist; they did their own project, the ideas came from themselves... It was enough to place the things on the table for them to know intuitively what to do! With time they took more and more initiative, almost excluding us (educators)... I would say their autonomy amount at 90%."

Beyond setting up and introducing the activities, the educator's main initiative consisted of recapping the journey and refocusing the attention on the key points of the activity.

Practical and contextual factors

R8 The tool's physicality enables personalization to increase the sense of ownership over it and the use as a stimulus to trigger the activities. If the DIY version well achieves the first purpose, the ready to use a version of the additional materials is necessary for the second one. A materials enrichment is suggested for performing the map activity. The physical board was also considered essential to keep progress and a consultable overview of the activities and showcase the project's validity. Therefore, the digital mean initially discarded, could be reconsidered for the last two options and enlarge the physical platform's audience.

R9 The tool was tested with 21 children working together on the proposed activities, which demonstrate the suitability for use in large groups. With regard to the DIY tool size, it is important to allow the print it in different format without modifying the board dimension.

R10 The activities' modularity allowed the tool experience to blend with the practice of the association that contributed or were integrated into the achievement of the activities goal. The alternation of crafting and thinking moments fulfilled by letting children crafting their own tools didn't result in disruptive with the overall activities flow. It resulted in beneficial for the overall empowering journey.

DESIGN
RESEARCH

design : toolkit for
positive changemakers

cycle 3

7

Conclusions

7.1 Introduction

The present research and design project aimed at investigating the possibilities to develop a child-led activation journey to enable children to take action as positive changemakers for meaningful prosocial challenges in their community. The desk and field research outcome resulted in the final proposal of a toolkit, a set of activities to help children identify and act upon opportunities for change. The design represents a starting point in the direction of empowering children as active agents and offers an initial contribution to the fields of children's cultural growth and children's participation in society and city-making. The following paragraphs show the limitations of the project and the opportunities for further exploration in research and design.

7.2 Limitation of research and testing

The limitation of the case studies analysis mainly lies in its time constraints, which didn't fully combine the desk research about the toolkit's theoretical process under review with its practical, experiential approach based on the interview of expert users. For instance, the experience of children with the approaches analyzed could have supported the researcher in drawing richer conclusions.

The challenges intrinsic to the project goal of children's self-activation dominated the research through the design phase. Specifically, the activation is a long term process that was studied and experimented within the time frame of six months of research and design project. In parallel, the focus on the self-activation constantly pushed the researcher to balance between the designer role and the experimental child-led approach. The constant negotiation and the condition of the approach itself performed by the researcher alone are subject to her personal interpretation.

The same phrase has been characterized by the discontinuity in testbeds and research methodology due to the outbreak of COVID-19 and depending on the accessibility of certain contexts.

The validity of the insights about children's perception of the community cannot be totally generalized to a different context, as children engaged in civic associations could show different results.

Also, the blended online-offline method used to build up knowledge about children's intuitive creative journey had some limitations. First of all, children didn't perform the activities in a standard familiar setup, which might have caused variations in their way of approaching creative problem-solving. Secondly, the project conveyed through the digital mean was perceived by children as less reliable, which affected their interpretation of the final goal. Finally, in the lack of peer to peer collaboration, children relied on the excessive support of their parents that in some cases, influenced their performance and ideas.

Across the second and third design interventions, including the testing of the final toolkit, the data were collected by giving participants the role of co-researcher and reporters of their own experience. Unlike observation, this method prolonged the timing of insights collection and introduced the bias linked to participants' interpretation and memory.

Due to time constraints, the testing of the toolkit presents two main limitations. On the one hand, only half of the tool activities flow has been tested, on the other hand the test has been performed with a single group of children, who was already sensitized on the project topic. To evaluate the overall activities flow and further improve the structure, usability, and adherence to the goal, a complete test with different groups of children should be conducted.

Additional tool testing could be performed in the presence of an expert facilitator to address further and later redesign the gaps in the tool flow and intention.

7.3 Recommendation for implementation

When discussing the possibility of implementing the toolkit in the current practices of the Urban civic networks, the educator, in her capacity as the frontrunner of the association's umbrella, defined the toolkit as a rough diamond, an experience to surely repeat, spread further and integrate into the UCN system. For this implementation, two scenarios can be envisioned.

Instant implementation of the tool can be performed through the creation of a specific urban civic network laboratory based on the tool activities. This would require planning and advertising phases that could happen through the modality and channels existing within the system. A decision has to be made if the program should be planned as a common initiative to all the networks or proposed to each of them individually. In both cases, the existing platform for showcasing the UCN project could add the program to the event's agenda and share the DIY version of the tool. For this purpose, the tool website can be slightly improved to convey additional background information about the program.

With the allocation of a dedicated budget, the tool and respective project could be further enriched, using its principles and flow to expand the scope of the activities. Children's ideas could be developed further, setting up collaborations with local partners. In this case, the ready to use a version of the tool could be produced and physically distributed to all networks as a starting kit for children civic activation, in line with their overall goal.

According to the educator, the tool could also be used in the context of elderly and persons with disabilities associations to give them the possibility to participate to the public debate. She also mentioned the opportunity to perform the activities flow as a collaboration amongst those groups and children. However, the tool has been specifically designed based on children's cre-

ative needs. Therefore the involvement of a different target group requires the development of a different language and communication style, as the current one might be perceived as childish.

Considering a broader vision for the toolkit, further research, implementation and eventual marketing, a network of interested stakeholders and sponsors active on the Italian territory could be reached and involved, amongst them the local children city councils, Save the children local centers (<https://www.savethechildren.it/cosa-facciamo/campagne/illuminiamo-il-futuro/punti-luce>) and The design school for children (<http://www.designschoolforchildren.com/>)

A scale-up vision falls outside the scope of the project, however as the tool was developed in collaboration with UCN context, further use in different environments should take into account the expertise of children in design and creative processes and their familiarity with project-based education.

7.4 Recommendation for redesign

On the basis of the insights collected throughout testing session and the following requirements assessment, small adjustments on the current design of the tool can be proposed.

While the tool board was positively assessed, the activity cards could be redesigned with a focus on reducing the amount of text and increasing the visual elements to support the content understanding. This first redesign proposal was based on the practice established during the testing experience to sum up the core principles of the activities in children or educator own words in the excitement before starting performing it. The redesign could be carried out in collaboration with children and educator by asking them how they would explain the same step to their peers.

In the section of additional materials, new supporting items should be added to carry out **activity 10 | the map of things that don't work**. This need arose from both educator, who struggled in setting up and effectively introduce the activity without a physical support and children who were eager to rebuild physically the outcomes of their observation but didn't find enough stimuli to shift toward an hands on tinkering. For instance, the modular tiles of a board could be offered as map base to trigger a big collaborative representation. In parallel, a set of abstract easy assemblable shapes and Materials are also requested to support a playful visualization mode.

Also, the board for the activity 11 I solve it with my powers showed room for improvements: first of all it needs to be bigger to be noticed and give physical space to a large amount of ideas; secondly the visual style could give more hints on how to carry out the activity, making the board self-explanatory.

Moreover, the power cards needed to perform the same step were easily confused with the change cards due to a similar graphic style. Therefore it suggested designing a unique and consistent visual and color style for each of the cards deck

Another challenge noticed during the testing and easy to further support with a tool addition

FIGURE 7.1: proposal of redesign for change and power card



was the preparation of material by the educator as set up for the activities. Specifically, a series of “what we need” cards per activity containing the materials to have available before the start could be implemented, as shown in FIGURE 7.2. The need for this integration should also be reconsidered in view of complete testing of the full tool experience.

With regards to the street signs boards, the digital templates to print or laser cut the boards should be combined with additional instructions on how to craft the board and stands with long-lasting materials.

All the redesign proposals presented mainly refer to the DIY version of the tool, while the redesign of the ready to use version should take into account the value of self-crafted tools in the children activation journey.

FIGURE 7.2: proposal of redesign for “What we need” card



7.5 Recommendation for further research

Around the tool

The testing sessions didn't offer only valuable insights for an immediate redesign but also inputs for reconsidering the tool experience on a broader level. For instance, during the toolkit experience, children focused on the way to communicate their ideas before developing the solutions to share. This didn't give children the occasion to pursue complete ideation and affected the quality of ideas presented on the board signs. To better fit children's flow, further testing could aim at exploring the effect of the readaptation of activities order. Specifically, the ideation and following invention activities should be proposed after the creation of the signs. In case of such intervention, the flow and storytelling of the cards should be adjusted accordingly.

Another direction worth investigating concerns the possibility of combining the DIY or ready to use a version of the toolkit with a digital one that could act both as a consultable showcase and virtual platform for sharing children's messages and solutions. Although the requirement about the tool physicality, the testing experience showed some interesting interaction with the digital world. Initially, with the toolkit materials' digital delivery, the educator asked for the tool website to use as a reference for building and setting up the sessions and sharing with other educators. During the activities, the children who missed the initial steps, like the avatars, were addressed to use the second intervention app. Finally, when street signs were ready, children realized about their willingness to share their ideas even further, and the educator sent a picture to the city councilors. On the basis of these data, the specifics of the digital support for both children and educators could be explored.

The open endedness and ambiguity of the steps were one of the toolkit's main principles that allowed children to take their own initiative within the activation journey proposed, which was also adapted to match

children's needs in the moment. However, this aspect is not immediately suggested by the tool. A more radical future research could challenge the linear flow of the activities and add layers of ambiguity to the journey. In parallel, it could be further investigated the role of materials as a trigger for the action, specifically studying the influence played by self-crafted tools in the performance of certain tasks.

Finally, on a practical level, a research on the different variations of the tool could reconsider the laboratory format into a shorter workshop or a more extended curriculum, based on the context of use and on the effect and learnings goals expected.

Around children wellbeing and personal flourishing

On a theoretical level, the research showed that children's empowerment on children's own terms moves from the recognition of children's abilities and competences and is strengthened by the practical and successful use of such abilities to reach a relevant purpose. The power-driven ideation introduced and experimented with the tool represents a starting point in this direction, which only partially overcome the initial mistrust, preventing children from taking initiatives based on their abilities. This opens questions on how to reinforce this mechanism and on how to find other practices supporting the build up of I can mindset. The educators also recognized the relevance of this topic, currently unattended in both formal and informal education. They proposed to combine the experiential loop of competence practice with a stronger narration around the theme of self-confidence. This could also be an input for further investigation.

Around children participation in city-making

The project has shown children's disruptive willingness to take part and contribute to the public debate and to have their ideas taken into account by both the adult community and policymakers.

The tool works as a launchpad for children to express and echo locally their own perspective and expertise on relevant matters and eventually start their own initiative, whenever there is a lack of top-down involve-

ment. For policymakers, it raises awareness about the role children can play in societal problem solving; for children, it set the background and premises to start a constructive dialogue with public authorities. However, further research could explore how to turn the background journey performed by children into elements to shape this dialogue. The second design intervention has also demonstrated the possibility of setting up a conversation with children in a virtual environment, reducing the practical limitations of children's participation. Therefore the study to support the communication with policymakers could consider different types of platform to be possibly included in the evolution of the tool.

On the basis of the insights collected during the second design intervention, another stimulating input of research and contribution to the field of children's participation in city-making is the use of speculative design as a communication means. While this project showed that children intuitively come up with imaginative and provocative solutions for wicked societal problems, further research is needed to explore how children understand the critical and communicative value of their intervention and how this is perceived by adults. Answering those questions could open up new child-led forms of expression in the societal debate.

REFERENCES

Hamers, D., de Mesquita, N. B., Vaneycken, A., & Schoffelen, J. (Eds.). (2017). Trading Places: Practices of Public Participation in Art and Design Research. dpr-barcelona.

Hart, R. (1992). Ladder of young people's participation. Children's Participation from Tokenism to Citizenship (Innocenti Essays No 4.).

Iivari, N., & Kinnula, M. (2018, August). Empowering children through design and making: towards protagonist role adoption. In Proceedings of the 15th Participatory Design Conference: Full Papers-Volume 1 (pp. 1-12).

James, A. (2007). Giving voice to children's voices: Practices and problems, pitfalls and potentials. *American anthropologist*, 109(2), 261-272.

Lansdown, G. (2001). Promoting children's participation in democratic decision-making (No. innins01/9).

Nordenfors, M. (2012). Participation-on the children's own terms?. City of Gothenburg, Tryggare och mänskligare Göteborg.

Stappers, P., & Giaccardi, E. (2017). Research through design. *The encyclopedia of human-computer interaction*, 2.

Unicef. (1989). Convention on the Rights of the Child.

Vaneycken, A. (2020). Designing 'for' and 'with' ambiguity: actualising democratic processes in participatory design practices with children.

