

# Participatory Design with Young Children: Failures, Challenges, and Successes

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This paper introduces a hands-on workshop centered on participatory design (PD) approaches tailored for engaging young children, with a special focus on failures, challenges, and successes in prior experiences within the child-computer interaction (CCI) domain. Although previous efforts have highlighted the advantages of engaging young children in PD, research has overlooked their involvement as co-designers, leading to a lack of exploration and understanding of their unique perspectives and challenges in the design process. Through an interactive session and collaborative activities, this workshop will facilitate discussions surrounding challenges, successes, and lessons learned through PD with young children. By evaluating and exchanging experiences, we aim to enhance our understanding of PD and refine its methodologies for this particular population. By synthesizing the shortcomings, difficulties, and successes of past experiences, the workshop will bring together researchers and practitioners to initiate efforts toward closing this research gap. Together we will establish the groundwork for enhanced approaches and a deeper understanding of how to involve young children in PD, which will enhance future efforts in the field of CCI.

CCS Concepts: • **Human-centered computing** → *Participatory design; Accessibility design and evaluation methods.*

Additional Key Words and Phrases: Inclusive Education, PD with Children, challenges, failures, experiences

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## 1 INTRODUCTION

Participatory design (PD) has recently gained more attention due to the greater opportunities it can bring for children [11]. With increased technological prevalence in children's lives, understanding and designing age-appropriate digital technologies is crucial. However, despite recognizing the necessity of involving children in PD approaches, there remains a notable lack of practical guidance for PD sessions with young children, particularly for kindergarteners [8]. Building on prior workshops on PD with children [3, 6, 9] this workshop's focus is on PD with young children, exploring the challenges, and successes of past PD experiences. Considering that the early stages of childhood development, including kindergarten, preschool, and primary school-aged children, are critical stages for educators, parents, and anyone involved in the care and education of children, the absence of age-appropriate methods and practices in PD may lead to critical consequences. Incorporating young children in PD, such as kindergarteners, enhances design processes

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and fosters a more inclusive, ethical, and innovative technological landscape. To enhance our understanding of how to effectively adapt PD approaches for young children, it's imperative to adopt a comprehensive approach that encompasses an analysis of the failures, successes, and lessons learned from previous PD implementations. Research involving children suggests that failures serve as valuable learning experiences [9, 10]. This paradigm shift encourages researchers to recognize and analyze small mistakes during studies as 'early warning signs', thereby preventing significant issues [2]. Implementing such adaptable and open-minded approaches in PD with children can foster sustainable practices and ongoing improvement, especially in handling unexpected situations.

The proposed workshop inherits the principles of PD [1, 4, 5]: (1) equality, (2) respect, (3) collaboration, (4) provision of diverse data and media sources, (5) careful planning while being open and flexible to changes during the PD process. We envision PD as a design philosophy emphasizing active participation for impactful outcomes, aiming to secure existing expertise and resources during the design phase [7]. To ensure children's active participation, a deep understanding of PD methods and their appropriate application is essential as they shape children's participation and engagement. Additionally, finding the right balance between providing structured guidance, scaffolding, or allowing children to freely explore independently is a critical trade-off. Reflecting on this balance and PD methods is necessary to inform and enhance future PD approaches with young children. This workshop is a call to practitioners, developers, designers, psychologists, educators, parents, and CCI researchers to seize the chance to share their PD experiences and to start exchanges to gather best practices and recommendations for implementation. We will facilitate discussion to address methods, resources, and tactics for promoting inclusion and scaffolding in PD processes with children.

## 2 GOALS

This workshop has three goals: (1) Exchange of Experiences: Facilitating meaningful exchange regarding prior experiences in PD with children. Participants will openly share successes, setbacks, methods, and strategies to further improve PD processes and sustain children's motivation; (2) Brainstorming for Improvement: Brainstorming to extend PD methodologies, leveraging the experiences of those working with young children, focusing on making the process more enjoyable and engaging for children. We intend to compile a comprehensive list of lessons learned, specific considerations, and successful methods to improve future PD sessions; and (3) Reflection on the workshop's outcomes: Reflective conclusion where participants share their most surprising revelation from the workshop and identify the most valuable takeaway. This aims to capture the workshop's key highlights and collective learning.

## 3 ORGANIZERS

The workshop organizers have experience in PD approaches with children, mostly with young children, such as neurodivergent children, and children with disabilities.

Katharina Buckmayer (corresponding organizer; [katharina.buckmayer@tecnico.ulisboa.pt](mailto:katharina.buckmayer@tecnico.ulisboa.pt)) is an educator and a PhD candidate at Técnico-Lisbon, affiliated with Interactive Technologies Institute (ITI) / LARSyS. Her work centers on CCI, multi-sensory smart toys, and learning environments to support positive childhood development.

Filipa Rocha ([fgrocha@fc.ul.pt](mailto:fgrocha@fc.ul.pt)) is a PhD student at the University of Lisbon, associated with LASIGE and the ITI / LARSyS. Her research focuses on accessibility and inclusion for mixed-visual ability collaboration in Computational Thinking activities.

Elisa Rubegni ([e.rubegni@lancaster.ac.uk](mailto:e.rubegni@lancaster.ac.uk)) is an Associate Professor, at Lancaster University. Elisa's research focuses on designing and evaluating children's experiences and investigating research questions around the impact of technology-based experiences for supporting children's narrative thinking, and emotional and cognitive skills development.

Reem Talhouk (reem.talhouk@northumbria.ac.uk) is an Assistant Professor and interdisciplinary researcher in Design and Global Development at Northumbria University. Her research has focused on conducting participatory design centred on issues of community resilience, migration, and humanitarian technologies.

Hugo Nicolau (hugo.nicolau@tecnico.ulisboa.pt) is an Assistant Professor at Técnico-Lisbon and a researcher at the ITI / LARSyS. His research interests include HCI and Accessibility, focusing on designing, building, and studying computing technologies that enable positive social change.

Ana Cristina Pires (ana.pires@iti.larsys.pt) is a psychologist specializing in HCI and a Research Fellow at the ITI / LARSyS, University of Lisboa. Her research is focused on creating interactive and tangible technologies, through PD methodologies, to support educational or social community practices.

#### 4 PRE-WORKSHOP PLANS

More information about the Workshop is available on our [website](#). We will also disseminate the workshop through HCI mailing lists, personal and institutional contacts, and social media.

#### 5 WORKSHOP STRUCTURE

This workshop focuses on refining PD methods for engaging young children. Through discussions and transparent sharing of experiences, we will explore challenges, successes, failures, and practical insights to enhance PD practices tailored to children's needs and cognitive development. Milestones for the workshop's discussion are the following questions: *How can we increase children's motivation and engagement during the process? How do we balance scaffolding according to the children's level of autonomy?* Attendees will gain new perspectives and methods to advance more inclusive and engaging designs aligned with young children's unique perspectives, fostering a collaborative space for refining child-centric PD approaches.

(1) WELCOME & INTRODUCTION (20 min): We will introduce ourselves, present the aim and organization of the workshop, and outline the tools that we will be using. Additionally, participants will have 5 minutes to introduce themselves and share their experiences in this context. We will request participants to bring a photo representing a success, failure, or challenge they envision or have experienced as researchers beforehand.

(2) DISCUSSION GROUP - Exchange of Experiences (40 min): Participants will be divided into groups of 4-6 people. We will begin by openly sharing PD experiences with young children, and then proceed to identify barriers and opportunities when conducting PD sessions.

(3) GROUPS SHARING (15 min): Each group will share their outcomes. General discussion and wrap-up results.

(4) DISCUSSION GROUP - Brainstorming for Improvement (40 min): Participants will discuss and propose solutions to the identified barriers. The overarching objective is to compile a comprehensive list encompassing lessons learned, specific considerations, and successful methods to implement and elevate future PD sessions with young children.

(5) GROUPS SHARING (15 min): Each group will share their outcomes. General discussion and wrap-up results.

(6) SUMMARY AND WRAP UP - Conclusive Insights (40 min): Reflective conclusion focusing on the following questions: *What was the most surprising revelation in this workshop? What were the most valuable takeaways?* Assessment of participants' willingness to plan a special issue of a Journal.

#### 6 POST-WORKSHOP PLANS

We will summarise the workshop results and create a white paper or a journal special issue to stimulate discussion in the community. We will invite participants to be part of a collaborative working group to develop further ideas

and suggestions gathered during the workshop. We also plan to establish an online community of practice to share experiences and actively promote PD with children in the realms of CCI.

## 7 CALL FOR PARTICIPATION

This half-day workshop aims to provide insights into the methodologies of PD when engaging younger children in the field of CCI. Participants will actively participate in discussions, share their findings, and collaboratively generate solutions. The workshop will wrap up with a reflective summary, providing an overview of ideas and perspectives acquired during the workshop. Papers will be peer-reviewed by the workshop organizers. We will select papers describing diverse backgrounds and experiences. We invite participants to fill out an online form (see our [website](#)) or to write a short paper of 2-4 pages as position papers, initial studies, or case studies, covering one of the following topics: (1) PD approaches with children, methods, and strategies; (2) Challenges and failures when doing PD with children, and (3) Social and ethical implications in PD. To broaden our audience and enable a more transdisciplinary discussion, we also invite individuals with diverse backgrounds, such as educators or parents. We will require a brief statement expressing their interest and motivation in participating in the workshop. Papers and motivation statements should be submitted to [katharina.buckmayer@tecnico.ulisboa.pt](mailto:katharina.buckmayer@tecnico.ulisboa.pt). At least one author of each accepted paper must attend the workshop. All workshop participants must register for both the workshop and the main conference. More information is available on our [website](#).

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