1. First and Last Name(s), Organization of author/group of authors *

> Anthony Hornof, University of Oregon

2. Email address of corresponding author

> hornof@cs.uoregon.edu

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> I have worked with children with severe cognitive and motor impairments (severe cerebral palsy, Rett Syndrome) in different forms of participatory design, both to explore the parameters by which such participants could be included as design partners, and to develop technology that the children could actually use.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐ Artifact-centered

☑ Methodological

☑ Design space/Implications (intermediate-level design knowledge)

☑ User-study

☐ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ Other

5. Which type of venues have you published/are you planning to publish in?

○ HCI

○ Non-HCI

◉ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

Special Education, Speech Language Pathology

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

With regards to children with severe cognitive and motor impairments, the insights of course pertain how to work with this population. And it is not straightforward to do so. To some extent, Special Education and Speech Language Pathology practitioners routinely co-design with such children. But these practitioners generally approach problems with existing technology. To a large extent, few computer-oriented designers engage in participatory design with these children. Perhaps because, at the risk of offending, (a) it is very difficult to design technology that would dramatically change the abilities of these children and (b) working with this population can lead to uncomfortable feelings.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

> It is difficult to talk about the discomfiture that some people experience when interacting with children with severe cognitive and motor impairments, in part because it is highly taboo to do so.

9. In terms of workshop organizing, what type of participation modalities would you prefer?

- ☑ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

- ☐ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

- ☐ A publication of all submissions based on this form as workshop contributions online

- ☐ No publication of these submissions

- ☐ Write-up of a summary of all submissions by the organizers on the website and on social media

- ☐ Other

1. First and Last Name(s), Organization of author/group of authors *

> Antonella Nonnis, EECS, Queen Mary University of London Nick Bryan-Kinns, EECS, Queen Mary University of London

2. Email address of corresponding author

> a.nonnis@qmul.ac.uk

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> At the beginning of 2018, we tested one sonic e-textile tangible interface, named Mazi, with a group of five children (1 girl, 4 boys) aged 6 to 9 attending a SEN school in the UK who liked music, against its benefits for social playful activities between autistic peers and for self-regulation because children's sensory processing abilities seem correlated to their level of participation in leisure activities. Hence it was important for us to develop a design strategy that addressed these points. The first phase of the study informed the design of Mazi. We observed children during school hours, collected information about them, interviewed school's experts i.e. occupational therapist, dance teacher (who facilitated the sessions of our study), the class teachers, the TAs and met with the parents of the participating children. Inspired by the children's likes we developed a semi-spherical (W700 x D400mm) TUI called Mazi. We aimed to address some of the challenges experienced by the children by a) exploiting the O-space paradigm, an imaginary space whereby social arrangements facilitate interactions, and b) findings from the literature that support the benefits of using soft haptic feedback (i.e. because it's preferred by some autistic children and/or because soft materials seem to decrease the sense of uncertainty), deep-pressure (because it has a calming effect) and music (i.e. to decrease anxiety levels and manage moods). We also focused our design on the concept of shareability. Mazi allows people to play up to five sounds polyphonically and was designed with entry and access points in

mind: the former represented by the shape of the piece, the type of interaction it offers and the colors used; and the latter denoted by characteristics such as the disposition of the colored bubbles, the polyphony of the instrument and its affordance. The study proper spanned over 5 weeks, on Thursday afternoon (30 mins c.a. per session) between April-May 2018 in the Dance Studio of the school. The design process was constructed to align with the scholastic curriculum with semi-structured sessions and an open-ended activity to enable children to do what they wanted most. We kept the same level of support that children received during school hours: two were accompanied by one TA (2:1); the other three were accompanied by one TA each (1:1). We adopted a user-centered design borrowing values from experience and ludic design (i.e. designing for pleasure and ambiguity) and welcomed some lateral co-design practices especially in regards to finessing the plans and the design of the TUI. We developed an evaluation framework, inspired by evidence-based practices i.e. SCERTS (some of the key areas tracked within the Social Communication domain of the Joint Attention section of the SCERTS), and the school's assessment measures. We extrapolated five main topics or themes and used them to track the children's experiences. The dance teacher and each TA weekly filled a tracking sheet independently (in relation to the five themes) by following a 5 point rating system already used at the school; and by giving more qualitative feedback in writing. We evaluated Mazi using a mix of data including pre/post-study interviews, children's documents, field notes, teachers' written feedback, and the annotations of the video analysis carried out using ELAN. Starting from a set of five themes (theory-driven) we then expanded the video analysis to include other recurring aspects that we thought contributed to a more in-depth analysis. The final evaluation contained 7 themes and several sub-themes (i.e frequency of behaviors, level of prompts, types of emotions, level of interest, rates of occurrences etc): T1 Look interested in the presentation of Olly (Attention Autism inspired) T2 Approach Olly with confidence T3 Pull to activate sounds T4 Play notes together with peers or partner T5 Show use of Olly for else than playing sound T6 Share emotions T7 Share attention

4. If you have already published about this(ese) project(s), what types of contributions have you made?

- ☑ Artifact-centered

- ☑ Methodological

- ☑ Design space/Implications (intermediate-level design knowledge)

- ☑ User-study

- ☐ Theoretical implications/frameworks

- ☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

- ☐ Patent

☐ | Other

5. Which type of venues have you published/are you planning to publish in?

⦿ HCI

◯ Non-HCI

◯ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

We would like to think that by conducting research with marginalised children we expand the CCI design space to be more inclusive, accessible, perhaps more vulnerable but surely more sensitive to the diverse needs and goals of marginalised children. Research into marginalised children it's important for the society overall. As the most marginalised children have often more complex needs than the rest of society, by designing for them we speak to every child. This is done by addressing and responding to the diverse needs of a broad spectrum of needs and children through lowering the barrier of access and increasing participation. The aim is that of embracing and encourage diversity by designing technologies that promote social integration (instead of social exclusion) and contribute to creating mutual understanding and social inclusion. By designing for marginalised children we reduce the inequality created by technologies and extend the design space to be more appealing to everyone. We believe that what works for people with special needs is applicable across society and lack of access to basic services and research place children of all abilities, gender, religion, status etc. at risk of being marginalised.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

Yes, it's difficult to formulate a clear idea or a supportive argument about why we think it's important to take a holistic view to design for i.e. children with autism. It's challenging to highlight the importance of the broader ecology in which the technological systems are deployed in i.e. the context, the environment, the people that facilitate the research as well as the people that support the children during the research, without nulling the validity of the tech itself. In our work, we tend to consider the technological artefacts as part of a broader context where flexible dynamics coexist between children, technology, and the environment that sustain and provide this child-computer interaction. Furthermore, we consider the level of knowledge, experience, and investment that a researcher can bring to the outcome of the research of extreme importance. Researchers are often far too removed from the lived experiences of the children they work with, and this can have a great impact on the overall research experience of the children (and stakeholders) but also on the evaluation of the findings. Children with autism often behave atypically but nonetheless they clearly express their emotional states. When collaborating with this population, especially with non-verbal children, researchers might often find themselves looking at nuanced changes in communication often perceived through behavioral cues. If a researcher is not attuned with the children's lives and with the various ways they manifest their emotional states it is obvious that this lack of knowledge will impact research outcomes as well as the children's experiences. Hence, it's important that researchers develop appropriate assessment and evaluative skills beforehand. In our humble opinion, we would always suggest researchers gain previous knowledge and or experience of the population of children they would like to collaborate with. We acknowledge that every child is different, however gaining experience with a varied group of individuals, will enable the researcher to develop a sensitivity towards the children that they want to work with which they might otherwise lack. Furthermore, the variety of evaluation methods, strategies, and approaches used in different contexts like schools, homes, hospitals, etc.. might also encourage researchers to make use of appropriate strategies and evidence-based assessment measures and contribute to the development of more comprehensive guidelines that could potentially be used across the CCI field. Lastly, it's also problematic to explain the importance of developing and nourishing relationships (including a high degree of trust) not just with the children we work with but also with the people within the institutions/environments/families we collaborate with i.e. teachers, families, therapists, social services, doctors, psychologists, clinicians etc. However, we are aware that the academic constraints we work within, do not allow much time for developing and nourishing deep human relationship. Hence it's sometimes difficult to make intermediate-level contributions that are feasible and replicable because it's difficult to explain how this balance can be achieved within the academic timeframe we all work in. We believe that these implications are fundamental in shaping children's experiences and the outcomes of our researches.

9. In terms of workshop organizing, what type of participation modalities would you prefer?

☑ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

☑ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

☑ A publication of all submissions based on this form as workshop contributions online

☐ No publication of these submissions

☐ Write-up of a summary of all submissions by the organizers on the website and on social media

☐ Other

1. First and Last Name(s), Organization of author/group of authors *

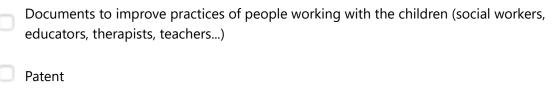> Erin Beneteau, University of Washington

2. Email address of corresponding author

> ebenet@uw.edu

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> Participatory design workshop with children who had been hospitalized and their siblings to design better information systems while in the hospital setting.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

- [ ] Artifact-centered

- [ ] Methodological

- [ ] Design space/Implications (intermediate-level design knowledge)

- [x] User-study

- [ ] Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ | Other |

5. Which type of venues have you published/are you planning to publish in?

◉ HCI

◯ Non-HCI

◯ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

| |

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

> When conducting research with marginalised children, their siblings should be considered as potential participants as well.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

| |

9. In terms of workshop organizing, what type of participation modalities would you prefer?

- [ ] Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

- [ ] Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

- [ ] A publication of all submissions based on this form as workshop contributions online

- [ ] No publication of these submissions

- [x] Write-up of a summary of all submissions by the organizers on the website and on social media

- [ ] Other

1. First and Last Name(s), Organization of author/group of authors *
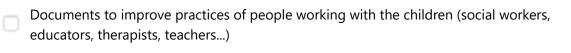
> Jamila Osman

2. Email address of corresponding author

> jamilao7@yahoo.com

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> I am currently interested in understanding marginalised children;s perception of Virtual Assistant. I am interested in further investigating this by participating and getting involved in this conference.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐ Artifact-centered

☐ Methodological

☐ Design space/Implications (intermediate-level design knowledge)

☐ User-study

☐ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☑ ⬜ Virtual Assistants an

5. Which type of venues have you published/are you planning to publish in?

○ HCI

○ Non-HCI

◉ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

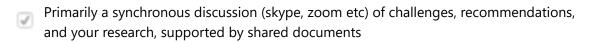Ethical aspects of use of AI.

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

Children who are marginalised are not included when designing or researching about technologies being developed. There should be more research in this field.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

Getting ethical approval for interacting children under 18 years of age. Although, I have designed a questionnaire and and drafted some part of my paper, I need to get access for children to respond to the questionnaire that would be ethically approved.

9. In terms of workshop organizing, what type of participation modalities would you prefer?

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☐ A publication of all submissions based on this form as workshop contributions online

☐ No publication of these submissions

☑ Write-up of a summary of all submissions by the organizers on the website and on social media

☐ Other

1. First and Last Name(s), Organization of author/group of authors *

> Katta Spiel, KU Leuven/TU Wien

2. Email address of corresponding author

> katta.spiel@tuwien.ac.at

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> The project "Understanding the Value of Play for Neurodivergent Young People" aims to explore how young people with cognitive disabilities engage with digital games through participatory exploration of play and game design. The project asks player-centred questions around the design of game interfaces, mechanics, and choice of genre, and it explores wider questions around the inclusive qualities that games can have to enable neurodivergent young people to participate in play. Furthermore, it explores implications of different types of neurodivergence for player engagement and design requirements. Through examination of the interplay between player preferences and their engagement with games, the project not only contributes to game accessibility research and support work of researchers and designers in this space, but also benefits neurodivergent players and fosters their inclusion in wider society through play.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐ Artifact-centered

☑ Methodological

☐ Design space/Implications (intermediate-level design knowledge)

☐ User-study

☐ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☑ | Lit Review |

5. Which type of venues have you published/are you planning to publish in?

◯ HCI

◯ Non-HCI

◉ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

| Design, STS, Gender/Disability Studies |

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

| |

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

9. In terms of workshop organizing, what type of participation modalities would you prefer?

☐ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

☐ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

☐ A publication of all submissions based on this form as workshop contributions online

☐ No publication of these submissions

☐ Write-up of a summary of all submissions by the organizers on the website and on social media

☐ Other

1. First and Last Name(s), Organization of author/group of authors *

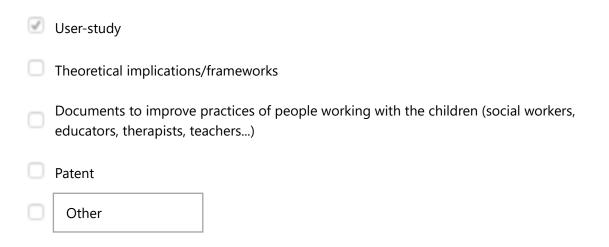> Leandro Soares Guedes, Università della Svizzera italiana

2. Email address of corresponding author

> leandro.soares.guedes@usi.ch

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> Currently, I am participating in project BEST - Beyond Screen readers and Alt Text - Designing Multisensory Alternative to Text for Different Reading Abilities. We had an experiment with 12 children at the end of 2019 using tablets and paper reading. Now, I am studying the field to apply my research to adults with mild cognitive disabilities and children with disabilities. While in Brazil, in 2017, we developed a Stroop Neuropsychological Test of Colors and Words for Children.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

- ☐ Artifact-centered

- ☐ Methodological

- ☐ Design space/Implications (intermediate-level design knowledge)

☑ User-study

☐ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ | Other |

5. Which type of venues have you published/are you planning to publish in?

◉ HCI

◯ Non-HCI

◯ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

[   ]

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

> I believe doing research with marginalized children bring several contributions to CCI since we are including these children and considering their needs to the research area.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

> I am at the beginning of my Ph.D. research, so I need more evaluation and reading to enhance my understanding and build something adapted for children with special needs.

9. In terms of workshop organizing, what type of participation modalities would you prefer?

☐ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

☑ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

☑ A publication of all submissions based on this form as workshop contributions online

☐ No publication of these submissions

☐ Write-up of a summary of all submissions by the organizers on the website and on social media

☐ Other

1. First and Last Name(s), Organization of author/group of authors *

> Laura Scheepmaker, TU Wien (Vienna)

2. Email address of corresponding author

> laura.scheepmaker@tuwien.ac.at

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> I am part of the Social Play Technologies project (http://socialplay.at) since 2017, where we co-design technologies with neurodiverse children that support social play. I have conducted over 30 participatory design workshops with three groups of children at two different schools over the past 2,5 years and designed two interactive prototypes together with my team which we evaluate now. Each group consists of 5 children, all of them are neurodiverse developing (the majority is autistic, but we also have children with ADHD and a child with trisomy 21). I am currently working on a teacher toolkit that comprises participatory design methodologies and interactive technologies, which hopefully allows teachers to continue our work in the future. We apply participatory design methods (based on the work of Druin, Benton, Iversen, Spiel, Frauenberger...) and involve the children actively in each step of the design process. During this workshop I would like to share my experiences when designing with neurodiverse children. As we are close to the end of our research project, I am especially interested in reflecting on which approaches worked well/not so well, and how we can plan for sustainability of our research results (beyond academia) and our social impact.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐ Artifact-centered

☑ Methodological

☐ Design space/Implications (intermediate-level design knowledge)

☐ User-study

☑ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ | Other |

5. Which type of venues have you published/are you planning to publish in?

◉ HCI

○ Non-HCI

○ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

[   ]

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

| - new perspectives from groups that are often not "heard" or asked - awareness of

marginalised groups - new methodological insights, "traditional" approaches must be tailored to diverse skills/needs or how to do workshops with a diverse group of people - ethical considerations

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

Mainly within my faculty (informatics), because HCI is only a small part and our contributions (and approaches, ethics...) differ from the other disciplines.

9. In terms of workshop organizing, what type of participation modalities would you prefer?

- ☐ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

- ☑ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

- ☐ A publication of all submissions based on this form as workshop contributions online

- ☐ No publication of these submissions

- ☑ Write-up of a summary of all submissions by the organizers on the website and on social media

- ☐ Other

1. First and Last Name(s), Organization of author/group of authors *

Mugula Chris Safari

2. Email address of corresponding author

chris.safari@uia.no

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)
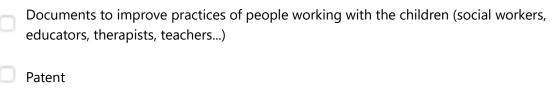
I am currently working on my Ph.D project about needs-driven innovation with people with intellectual disabilities (Action Design Research). My project aims at exploring the involvement of people with intellectual disabilities in design activities. My data is collected through interviews, observations, and photovoice.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐ Artifact-centered

☐ Methodological

☐ Design space/Implications (intermediate-level design knowledge)

☑ User-study

☐ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ Other

5. Which type of venues have you published/are you planning to publish in?

○ HCI

⦿ Non-HCI

○ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

Disability studies

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

Working with marginalised individuals contributes to insights that are relevant to other user groups (design activities, methodology)—also, valuable experiences in e.g facilitation.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

Involvement has been time-consuming. Moreover, it has been challenging to understand, explore, and communicate with the participants I some stages of the design process. As gathering consent. I have also faced some challenges in finding the right outlet for my research

9. In terms of workshop organizing, what type of participation modalities would you prefer?

☐ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

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☐ A publication of all submissions based on this form as workshop contributions online

☐ No publication of these submissions

☐ Write-up of a summary of all submissions by the organizers on the website and on social media

☐ | Other |

1. First and Last Name(s), Organization of author/group of authors *

> Olivia Richards, Carol Scott, Allison Spiller, Gabriela Marcu; University of Michigan, School of Information
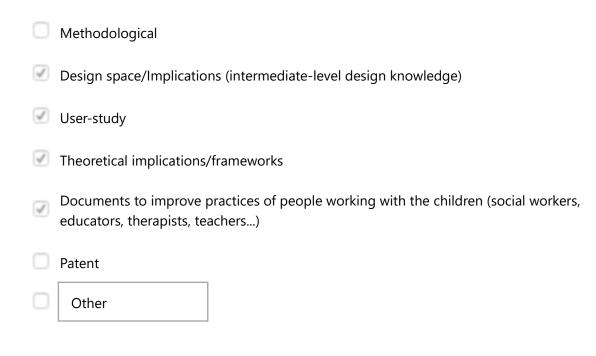
2. Email address of corresponding author

> oliviakr@umich.edu

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> Broadly, we are studying how care teams collaborate to support children with behavioral needs. Currently, we have deployed a six week diary study to at-home caregivers of children with behavioral needs as they reflect on communication with practitioners at their child's school through the COVID-19 pandemic. We will run one-hour follow-up interviews via phone or video conference in the coming weeks. We had planned participatory design sessions to further explore the information needs of at-home caregivers, but the pause on in-person research has halted those plans. Once the ban is lifted, we aim to collaborate with both children and their care teams to explore how children can be granted more agency in their behavioral management.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☑ Artifact-centered

☐ Methodological

☑ Design space/Implications (intermediate-level design knowledge)

☑ User-study

☑ Theoretical implications/frameworks

☑ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ Other

5. Which type of venues have you published/are you planning to publish in?

◉ HCI

◯ Non-HCI

◯ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

Research with marginalized children brings great insight to the field of Children-Computer Interaction as a diversity of voices should be heard in all endeavors. The needs of all children should be considered in the design of technology. For instance, if we design for marginalized children we are really designing for all, since technology that is designed for and with them in mind can easily be beneficial for all.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

> Balancing our study of the needs of children parents and practitioners has been a challenge in contributions to HCI. In light of this, we have made contributions by focusing on one or a subset of stakeholders at a time. Additionally, we see the challenges of building bridges across stakeholder-focused literature. Thus, we are interested in exploring how our research focused on one subset of the complex care network, such as a therapist, or the child, can help researchers understand the other people involved (i.e. at-home caregivers).

9. In terms of workshop organizing, what type of participation modalities would you prefer?

- ☑ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

- ☐ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

- ☑ A publication of all submissions based on this form as workshop contributions online

- ☐ No publication of these submissions

- ☑ Write-up of a summary of all submissions by the organizers on the website and on social media

- ☐ Other

1. First and Last Name(s), Organization of author/group of authors *

> Rafiah Badat, Division of Language & Communication Science, School of Health Sciences at City University, London and Paediatric Community Speech and Language Therapy, St George's University Hospitals NHS Foundation Trust

2. Email address of corresponding author

> rafiah.badat@nhs.net

3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> Background Evidence suggests that almost ten percent of primary school-aged children present with a language disorder. In England alone, this could be characterised in up to a quarter of a million children by a vocabulary difficulty restricting the ability to find the words to express wants, needs and ideas. Around a third to half of these children may have co-occurring wellbeing issues resulting from problems with emotional, psychological and/or social aspects of behaviour. Without specialist help, issues can escalate and persist into adulthood. Despite this, there is little research simultaneously considering impact of support provisions on language and wellbeing. This is likely due to low awareness across health, education and social care of the co-morbidity leading to poor multidisciplinary collaboration during both intervention and research design. Intervention studies showing greatest potential for improving vocabulary with some mention of behaviour gains are those employing word-webs i.e. diagrams resembling mind-maps for organising sound and meaning information and those delivered on mobile tablets. Whilst both approaches support multi-sensory learning, as preferred by children with language disorder, there are no therapies combining techniques by using interactive digital word-webs to search, record and store information. Aims This project aims through service-user co-design to develop and test the feasibility of a digitally-enhanced vocabulary intervention and explore tools for

measuring impact on language and wellbeing. Study objectives and methods (time frames are TBC depending on wider COVID19 response) 1.Review intervention studies with primary school-aged participants employing vocabulary and wellbeing outcome measures (9 months: Jan 20–Sept 21). Systematic review to compare effectiveness of existing interventions & identify outcome measures used. 2.Co-create a research website aimed at the general public by working with young people aged 9-18 years from diverse backgrounds including those with language disorder (6 months: May 2020-Oct 2020) Explore and implement remote engagement methods to enable young people to design the research website. 3.Create intervention protocol using logic modelling (1 month: Sept 20) Use systematic review findings to inform core components of the novel intervention. 4.Develop intervention software with service-users (10 months: Oct 20-July 21) Run co-design workshops involving children aged 9-10 years with a language disorder 5.Refine intervention with stakeholders (11 months: Oct 20-Aug 21) Analyse feedback from parents, academics & practitioners from health, education & social care and use to improve the intervention. 6.Plan and implement feasibility study (15 months: Aug 21-Oct 22) Two-arm trial involving children aged 7-8 years with a language disorder allocated randomly to 6-weeks digital (n=12) or paper-based (n=12) vocabulary intervention delivered by Speech and Language Therapists. Collect data to investigate: • Process evaluation: o Reach (recruitment/compliance/follow-up rates), o Fidelity, o Impact of delivery mode (digital/paper-based). • Intervention outcome measures: o Primary vocabulary and secondary behaviour measures analysed at pre-intervention, postintervention and 6-week follow-up for sensitivity to and direction of change. o Primary outcomes to guide sample-size estimates for subsequent randomised controlled trial. Impact and dissemination Project outputs will 🔲 encourage multidisciplinary management of co-occurring language and wellbeing needs: 🔲 provide a model of co-designing with service-users 🔲 give a clear route for future work evaluating intervention impact and cost-effectiveness. Dissemination will be through website and social media channels; community/public-service meetings in conjunction with the Project Steering Group (parents and professionals); peer-reviewed journal publications and presentations at professional events.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐ Artifact-centered

☑ Methodological

☐ Design space/Implications (intermediate-level design knowledge)

☑ User-study

☐ Theoretical implications/frameworks

☑ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ | Other |

5. Which type of venues have you published/are you planning to publish in?

○ HCI

◉ Non-HCI

○ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

Digital Health, Speech and Language Therapy Practice, Education

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

For tech solutions to truly address the needs of all children, the design process has to actively involve children from as diverse backgrounds as possible including in terms of cognitive/physical ability, socioeconomic status, race, culture and gender preferences. Not doing so runs the risks of creating products that are only accessible to some children and not others leading to bias and inequalities. On the flip side, an inclusive design approach means that a larger section of the population is likely to engage with products thus reaping greater benefits for all. Research insights are crucial for supporting an inclusive design approach. Studies that compare and explore approaches for involving marginalised children in tech design can provide specific, practical steps that can be replicated and adopted widely allowing inclusive approaches to become the norm. Furthermore, research can provide marginalised children with a voice to express their wants, needs and preferences which can garner understanding and empathy from industries thus motivating them to adopt an inclusive approach.

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

There are a few challenges I have encountered during my research: >The dearth of existing research/researchers in this field makes it difficult to identify best practice, models to base own research on or an established peer group that can be accessed for mutual support and guidance. >The very fact that the research involves marginalised children means that extra time and cost considerations are required when planning the research. My research involves working with children who have language and learning difficulties in conjunction with their school which is located in an area of high socioeconomic need and where for the majority of families English is an additional language. Factors to consider include the need for coordinating demands on the children's time due to multiple education, health and social professionals being involved, need for interpreters in order to engage and liaise with families – this also has implications for gaining consent, issues with reimbursement as can impact on benefits that parents/carers are receiving, travel issues restricting where research can be done (families generally reliant on public transport). > There are a large number of factors to consider when applying for ethical approval for research as the population is vulnerable because of their age, additional learning needs and language-barrier that is common with parents/carers - thus makes gaining ethical approval a long complex process. Furthermore, recruitment is through NHS caseloads meaning ethics reviewers may be from medical backgrounds despite the research being more behavioural and social in nature.

9. In terms of workshop organizing, what type of participation modalities would you prefer?

- ☑ Primarily a synchronous discussion (skype, zoom etc) of challenges, recommendations, and your research, supported by shared documents

- ☐ Primarily an asynchronous discussion (slack, discord) of challenges, recommendations, and your research, with synchronous moments to meet and network (such as virtual coffee breaks)

- ☑ A publication of all submissions based on this form as workshop contributions online

- ☐ No publication of these submissions

- ☑ Write-up of a summary of all submissions by the organizers on the website and on social media

- ☐ Other

1. First and Last Name(s), Organization of author/group of authors *

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3. Could you briefly describe the research project(s) relevant to this workshop and that you'd want to share? (overall timeline, methodology, children involved)

> I'd like to share reflections about my PhD research that investigated designing for communication and children with severe speech and physical impairments. This was undertaken over 4 years with approx 1 year of fieldwork with children, predominantly in school settings. I undertook qualitative fieldwork and mainly used observation and video analysis, workshops and ethnographic methods to understand about children's communication experiences. Theoretically, the analysis was informed by a social semiotic multimodal perspective. This meant that in my analysis, I attended to how children created meaning on their own terms with all of the multimodal resources that were available to them. 5 children were involved, all primary school aged and all used some form of augmentative and alternative communication device as part of their communication system.

4. If you have already published about this(ese) project(s), what types of contributions have you made?

☐   Artifact-centered

☑ Methodological

☑ Design space/Implications (intermediate-level design knowledge)

☐ User-study

☐ Theoretical implications/frameworks

☐ Documents to improve practices of people working with the children (social workers, educators, therapists, teachers...)

☐ Patent

☐ | Other |

5. Which type of venues have you published/are you planning to publish in?

◉ HCI

◯ Non-HCI

◯ Both

6. If you have published/are planning to publish in non-HCI venues, what kind of fields did you aim to contribute to?

> Aim to communicate to a communication theory audience through discussing an application of social semiotic multimodality. Also, I hope to continue developing other forms of transferable knowledge that comes from designing with and for children who communicate in non traditional ways.

7. What kind of insights do you think research with marginalised children bring to the field of Children-Computer Interaction?

> Methodological contributions are often cited, e.g. ways of supporting participation. There are also ways that this kind of work can inform theory, e.g. related to learning, communication, design - this is often less reported

8. Are there challenges you have experienced / are experiencing regarding formulating the contributions of your research?

> Reviewers are often keen for papers to explicitly foreground the methodological process (possibly because this helps with credibility), but from my experience, this is often at the expense of discussions on other contributions, e.g. discourses on power, understanding communication.

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