

Child participation beyond the adult realm: Participatory Design in nature-play contexts

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Certificate of Original Authorship

I, Bronwyn Cumbo declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in Sustainable Futures, in the Institute for Sustainable Futures at the University of Technology Sydney.

The thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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List of Publications

- Cumbo, B.J., Jacobs, B.C., Leong, T.W. & Kanstrup, A.-M. 2014, 'What motivates children to play outdoors? Potential applications for interactive digital tools', *Proceedings of the 26th Australian Computer-Human Interaction Conference on Designing Futures, OzCHI '14*, ACM Press, New York, NY, pp. 168–71.
- Cumbo, B.J. & Leong, T.W. 2015, 'Wearable audio-video recorders as a tool for investigating child play experiences in nature', *Proceedings of the 27th Australian Computer-Human Interaction Conference on Designing Futures, OzCHI '15*, ACM Press, New York, NY, pp. 618–22.
- Cumbo, B.J., Paay, J., Kjeldskov, J. & Jacobs, B.C. 2014, 'Connecting Children to Nature with Technology: Sowing the Seeds for Pro-environmental Behaviour', *Proceedings of the 13th International Conference on Interaction Design and Children, IDC '14*, ACM Press, New York, NY, pp. 189–92.

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Glossary of terms

Artefact: Physical tool used to mediate children’s play or participatory activities.

CCI: The discipline of Child-Computer Interaction where I situate this research.

Children: I focus on children aged 7-11 years, however, I do *not* discuss the differences between children of different ages and genders.

Child-led nature-play contexts: The ‘special places’ in nature that children choose to play during their free time in their local neighbourhood (excluding institutional settings).

Digital affordances: Four open-ended functions commonly associated with digital technologies, including *recording information, retrieving information, communication and mapping*. These affordances are child-friendly adaptations of the four affordances originally described by Murray (2011).

Digital design: The process of designing digital technologies.

Digital technologies: The electronic tools, systems, devices that generate, store or process data.

Emplacement: A derivative of the theory of embodiment that attends to the sensuous relationship between *people* (mind and body) and *place* (Fletcher 2005).

Nature: Outdoor areas containing living flora and fauna species that exist independently of human interference and are central to children’s play. This encompasses a continuum of areas influenced by anthropogenic modifications, from nature reserves, abandoned lots and parks (Linzmayr, Halpenny & Walker 2013).

Participatory design: “*a process of investigating, understanding, reflecting upon, establishing, developing, and supporting mutual learning between multiple participants in collective ‘reflection-in-action’*”. (Robertsen & Simonsen 2013).

Play: Defined in this dissertation as a personal, ‘emplaced’ practice shaped by the intrinsic motivators, knowledge and histories of each child, in-response-to their interactions with their social and spatial-physical surroundings (Lester & Maudsley 2007; Beisser, Gillespie & Thacker 2012).

Practice: From (Ehn 1988, p.60) *“An everyday practical activity. It is the human form of life. To be in-the-world is more fundamental than subject-object relations. In practice we produce the world, both the world of objects and our knowledge about the world. Practice is both action and reflection. But practice is also social activity. As such it is being produced cooperatively with others being-in-the-world. To share practice is also to share understanding of the world with others”*.

Special places: The places children (7-11 years) find or create during play. They are usually spatially removed or hidden from parent caregivers (Sobel 2002).

Abstract

In this dissertation, I address the research question: *How can participatory design research situated in “child-led nature-play contexts” contribute to current discussions of participation in child-computer interaction (CCI)?* Child participation is now common practice in CCI as it leads to improved outcomes and gives children a say in design decisions. However, current theoretical and methodological understandings of child participation are primarily derived from studies situated within adult-led institutional contexts (e.g. design labs, school classrooms, museum or libraries), where the objectives and qualities of participatory activities are designed and directed by adults, and echo socio-cultural norms, values and expectations embedded in these settings. By situating participatory design within this novel context, the dissertation presents four knowledge contributions to current discussions of child participation in CCI. Firstly, the *Participation-through-Play method* which details the approaches and techniques to support children set the directions for digital design within their child-led nature-play contexts. Secondly, the *least-adult role*, which is a relational, dynamic, reflexive role for the adult researcher to promote child-led forms of participation through design. Thirdly, by drawing on the theory of emplacement (Howes 2005), research reveals how the design location (place) and artefacts shape children’s participation in design, an elements of PD contexts that are commonly overlooked in CCI. Finally, I propose a *novel conceptualisation of participation* as an ‘emplaced’ phenomenon that emerges through dynamic interactions between human and non-human actors in a design ‘place’.

The dissertational work was conducted as a three-year action research process departing from current research in CCI and childhood studies to support child-led envisioning of digital applications for their play.