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CREATIVE CAPACITY BUILDING: ENHANCING PARTICIPATORY DESIGN WITH RURAL CAMBODIAN FARMERS

A thesis presented in partial fulfilment of the requirements for the degree of

Doctor of Philosophy
in
Engineering

at Massey University, Albany, New Zealand

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2019

ABSTRACT

The development of technology to address challenges faced by underserved communities in developing countries has become the focus of many engineers and designers in the Western world. However, to date, such technologies have not had the level of positive impact and long-term adoption predicted. Research shows this is due to contextually-driven factors not being taken into account, such as a lack of locally available materials and skills, harsh environmental conditions and a lack of buy-in from the community. Projects which include the community in the process of identifying and prioritizing the challenges they face, generating ideas and building prototypes, have been proven to be more effective at creating solutions that are accepted and maintained. This process, known as Participatory Design (PD), is growing in popularity. However, PD practitioners still struggle to facilitate true collaboration with communities with documented challenges focusing on communities having a lack of understanding of design, problem solving and creativity as well as a lack of confidence and motivation to contribute to a long-term PD project.

This study aims to resolve this challenge by utilizing knowledge from the field of Creative Capacity Building (CCB); an education-focused field that looks to improve an individual's ability to independently problem solve and innovate through structured, hands-on training sessions. Based on literature, a CCB programme was designed, to be completed at the beginning of a long-term PD project. This aimed to be succinct, engaging and socio-culturally appropriate to the specific community. A six-month, multi-case study was undertaken with several partner organizations in rural Cambodia. The study aimed to collaborate with rural people with disability, to create technology that improved their ability to engage in agricultural practices.

Results showed that the implementation of CCB positively affected the community's ability to contribute contextual insights to the project as well as their understanding of the design process and motivation to contribute. CCB was not found to improve the community's ability to critique existing designs or their ability to create prototypes, competencies that were already strong; nor their ability to generate ideas, a competency that was weak. Other findings included a positive relationship between the use of making-style activities and community motivation, an inverse relationship between group size and community ability to express opinions and a new conceptual model to describe the collaborative partnership between designer and community.

Keywords: participatory design; capacity building; agriculture; developing context; humanitarian technology development; humanitarian engineering

Summary of Publications

Four papers have been published and one paper is under review as part of the doctoral research presented in this thesis. Parts of all five papers have been integrated into relevant thesis sections.

Paper I:

Drain, A., Shekar, A., & Grigg, N. (2017). 'Involve me and I'll understand': creative capacity building for participatory design with rural Cambodian farmers. CoDesign, 1-18. doi:10.1080/15710882.2017.1399147

Paper II:

Drain, A., Shekar, A., & Grigg, N. (2018). Participatory design with People with Disability in Rural Cambodia: The Creativity Challenge. The Design Journal. doi:10.1080/14606925.2018.1488923

Paper III:

Drain, A., Shekar, A., & Grigg, N. (2018). Insights, Solutions and Empowerment: a framework for evaluating participatory design. CoDesign. doi:10.1080/15710882.2018.1540641

Paper IV:

Drain, A., Shekar, A., Grigg, N., & McCreery, M. (2018). The collaborative design of a low-cost, accessible rice seeder for rural Cambodia: Trade-offs and challenges. IEEE Catalog Number: CFP18GHT-ART. : IEEE Global Humanitarian Technology Conference

Paper V:

Drain, A., & Sanders, E. (2018, Under Review). A Collaboration System Model for Planning and Evaluating Participatory Design Projects. International Journal of Design.

Acknowledgements

I began this research journey as a commercial product developer, with little understanding of the world and little understand of how to collaborate with other cultures. I am thankful to say, I am now a participatory designer with *some* understanding of the world, and a great deal more understanding of how to collaborate with others. While this transformation may seem subtle to the outside world, it has been life changing, and I am extremely grateful for the opportunity.

This research documents the collaboration of dozens of individuals, both designers and community members, from New Zealand, Australia, Cambodia, the Netherlands, Poland and the United Kingdom. Thank you to all collaborators directly involved in my project work: Melissa, Longhan, Dalen, Khim, Sokmeas, Natalia, Nick, Nora, Emily, Sreypov and Virak. I am also grateful to the community of Kampong Tralach, Cambodia. Collaborating with them has been inspiring, eye opening and challenging. They welcomed us into their community and gave everything to the project, thank you. I am sorry we have not yet reached final, implemented solutions; this will be my focus in the immediate future.

Agile Development Group, Light For The World and Engineers Without Borders Australia have all been important partners throughout the project. The support I have received from their staff, in the Netherlands, Australia and Cambodia has been invaluable. I have been welcomed into a network of diverse practitioners and have received opportunities I could not have imagined at the beginning of this journey. Thank you for all of the discussions about humanitarian engineering, ethics, community development, participatory design and life in general. While it is too difficult to name you all, I would like to make special mention of Ian Jones, David Curtis, Alanta Colley, Jenny Turner, Bianca Anderson, Nick Brown and James Ayers. You have all helped to shape this research and I am very grateful for the support.

I would like to thank my supervisors Aruna Shekar and Nigel Grigg for their support throughout the entire project. Their ability to critique and support while providing autonomy and trust was invaluable to the research. I do not think research of this kind would have been possible any other way. I am also grateful to many other members of staff at Massey University. In particular, Paul Childerhouse and Sandy Bulmer for their guidance during researching planning.

Thank you to my parents, Fiona and Mike, for their support throughout my undergraduate and postgraduate studies. They have been an incredible source of advice, perspective and motivation. From financially supporting me through my undergraduate degree to emotionally supporting me through my PhD, none of this would have been possible without you.

I am grateful for all the friends who have supported me along the way, in the various homes I have lived in. Thank you all for letting me bore you with tales of academic literature review, data analysis and thesis writing.

To Georgie – thank you for your constant support over the past three and a half years. Thank you for enduring months of time apart, and even encouraging me to travel to other countries to work and learn. Your kind, adventurous nature has kept me grounded and ensured I still took time away from my work to enjoy our life together. Thank you for not getting too angry when I drifted off into my thoughts or checked emails at 11pm. We are a team, and this research belongs to both of us.

Thank you to everyone I have worked with along the way. I am the product of my experiences, and this research reflects the journey we have travelled.

List of frequently used abbreviations

PD	Participatory Design
HTD	Humanitarian Technology Development
HTD-using-PD	Humanitarian Technology Development using Participatory Design
CCB	Creative Capacity Building
PwD	Person with Disability
ADG	Agile Development Group
LFTW	Light For The World Cambodia
EWB	Engineers Without Borders Australia
D(n)	Designer (n)
P(n)	Participant (n)

Table of Contents

Table of Figures

Table of Tables