
Reflective Knowledge Production through a Designer-Researcher Approach

William Odom

School of Interactive Arts and
Technology
Simon Fraser University
Surrey, BC, Canada
wodom@sfu.ca

Tal Amram

School of Interactive Arts and
Technology
Simon Fraser University
Surrey, BC, Canada
tal_amram@sfu.ca

Amy Yo Sue Chen

School of Interactive Arts and
Technology
Simon Fraser University
Surrey, BC, Canada
chenamyc@sfu.ca

Henry Lin

School of Interactive Arts and
Technology
Simon Fraser University
Surrey, BC, Canada
hwlin@sfu.ca

Jordan White

School of Interactive Arts and
Technology
Simon Fraser University
Surrey, BC, Canada
jordan_white@sfu.ca

MinYoung Yoo

School of Interactive Arts and
Technology
Simon Fraser University
Surrey, BC, Canada
minyoung_yoo@sfu.ca

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than the author(s) must be honored. Abstracting with credit is permitted.

Position Paper submitted to *A Sample of One: First Person Research Methods in HCI Workshop* at DIS '19, June 23–28, 2019, San Diego, CA, USA © 2019 Copyright is held by the owner/author(s).

Abstract

Recently, there have been an increasing number of calls for design research to further differentiate itself from other stands of HCI research by better attending to the unique contributions that a critically reflexive approach to design-led research can offer. Over the course of past 7 years, we have adopted a Designer-Research approach to making and reflecting on highly finished design artifacts as a form of research in-and-of-itself. Yet, developing a sensibility for having a unified narrative voice when reporting on our research across our design research team members has not been easy or straightforward. Our motivation for participating in this workshop is to share a brief summary of these experiences and to explore productive overlaps and possible tensions between first-person research methods in HCI and a Designer-Researcher approach to HCI research.

Author Keywords

Design-led Research; Research through Design; Reflective Knowledge Production; Research Methods.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Position Statement

Design-oriented research has steadily gained purchase in the HCI community over the past two decades. An underlying thread across this trajectory of work has focused on the development of new knowledge through the construction of design artifacts. In 2003, Fallman [2] argued that the core activity of design research is giving form to previously nonexistent artifacts to uncover new knowledge that could not be arrived at otherwise. Since then, researchers including Gaver and Bowers [4], Zimmerman et al. [19], Faste [3], Obrenović [8], and Stolterman and Wiberg [18] (among several others) have articulated design-oriented approaches that are united in their emphasis on the act of making as a means to critically investigate emerging issues in HCI research. Most recently, a growing call has emerged for more HCI research that closely attends to the processes of creating design artifacts [4,6,15]. Collectively, these works highlight the need for more examples of design research to develop a foundation from which future methods and theories can be developed.

Over the course of past 7 years, we have used a 'Designer-Researcher' approach to making and reflecting on highly finished design artifacts as a form of research in-and-of-itself (e.g., [1,10,11,13,14]). Our designer-researcher position gives prominence to first-hand insights that emerge through the creation of real things that materially ground conceptual ideas through their actual existence—"a process of moving from the particular, general and universal to the ultimate particular – the specific design" [7, p.33] In our experience, the designer-research approach functions as a small but multi-disciplinary team that is reflexively focused on the experimental and novel outcomes of the

design process that are critically and reflectively arrived at through design practice. Thus, the designer-research approach can contribute a highly insightful, first-hand, and reflexive view of practices of making design artifacts in relation to higher-level concepts framing key decisions in the design process and in light of attendant materials, tools, methods, and competencies. We see this approach as being highly aligned with Schön and Benett's characterization of design practice as a *reflective conversation with materials* [16,17].

The design artifacts we are invested in making are *research products* [11] that are intended to be lived with over longer-time periods and achieve a high quality of fit in and among things in people's everyday environments. Thus, a key part of this process involves different design team members living with various prototypes versions of the design artifacts we are making to fine-tune qualities of use (e.g., the pacing or rhythm of slowly changing system), explore living with different forms and materials, and field test for technical robustness.

However, developing a sensibility for having a unified narrative voice when reporting on our research in light of the various roles that design research team members play throughout the design research process has not been straightforward. Through ongoing discussions among our design research team and in our studio, we feel ambivalent over whether our designer-researcher approach exactly fits within a First-Person approach to research in HCI (e.g., [8]). It is reflexive and aims to deliver first-hand insights, yet these insights are often arrived at in a messy way—through ongoing individual and collective design practice, group critiques, material explorations, experiences of living

with prototypes collectively in our studio as well as individually in our own homes, and so on. While the research product methodological framework gives us a foundation for making high-level decisions across all of our research projects, each project never quite follows the same pathway.

Yet, we believe that structuring, capturing, and reflecting on key points across a design research process would be highly beneficial to our designer-research approach (and, no doubt, for other design-oriented HCI researchers as well). Our motivation for participating in this workshop is to explore productive overlaps and possible tensions between first-person research methods in HCI and a Designer-Researcher approach to HCI research. Our goals are to better understand how other researchers are engaging with first-person, reflective forms of knowledge production and to participate in a dialogue around these issues. How could perspectives among design team members in the early stage of RtD process be both incorporated and diverged in among a multidisciplinary team in the final research publication?

References

1. Amy Yo Sue Chen, William Odom, Ce Zhong, Henry Lin, and Tal Amram. 2019. Chronoscope: Designing Temporally Diverse Interactions with Personal Digital Photo Collections. In *Proceedings of the Designing Interactive Systems Conference (DIS '19)*. ACM, New York, NY, USA,
2. Daniel Fallman. 2003. Design-oriented human-computer interaction. In *Proceedings of the SIGCHI conference on Human factors in computing systems*, 225–232.

Recent outcomes of our own use of the Designer-Researcher approach include the *OLO Radio* [12] and *Chronoscope* [1] Projects. Both of these design artifacts have recently passed the stage of crafting and will be deployed soon, which make them fresh and ideally suited examples to be shared in the workshop. We could briefly reflect on and summarize these works in context of the workshop to ground and demonstrate our approach, as well as highlight key tensions that have surfaced through conducting this design-led research.

Acknowledgments

The Social Science and Humanities Research Council of Canada (SSHRC), Natural Sciences and Engineering Research Council of Canada (NSERC), and Canada Foundation for Innovation (CFI) supported our research projects described in this paper.

3. Haakon Faste. 2017. Intuition in Design: Reflections on the Iterative Aesthetics of Form. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 3403–3413.
4. William Gaver and John Bowers. 2012. Annotated portfolios. *interactions* 19.4: 40–49.
5. William Gaver and Kia Höök. 2017. In search of the elusive CHI design paper. *interactions* 24 2: 22–23.
6. Nadine Jarvis, David Cameron, and Andy Boucher. 2012. Attention to detail: annotations of a design process. In *Proceedings of the 7th Nordic Conference on Human-Computer Interaction*:

- Making Sense Through Design* (NordiCHI '12). ACM, New York, NY, USA, 11-20.
7. Harold Nelson and Erik Stolterman. (2012). *The Design Way: foundations and fundamentals of design competence*. 2nd Edition. MIT Press.
 8. Carman Neustaedter and Phoebe Sengers. 2012. Autobiographical design in HCI research: designing and learning through use-it-yourself. In *Proceedings of the Designing Interactive Systems Conference (DIS '12)*. ACM, New York, NY, USA, 514-523.
 9. Željko Obrenović. 2011. Design-based research: what we learn when we engage in design of interactive systems. *Interactions* 18.5: 56-59.
 10. William Odom, Mark Selby, Abigail Sellen, David Kirk, Richard Banks, and Tim Regan. 2012. Photobox: on the design of a slow technology. In *Proceedings of the Designing Interactive Systems Conference (DIS '12)*. ACM, New York, NY, USA, 665-668.
 11. William Odom, Ron Wakkary, Youn-kyung Lim, Audrey Desjardins, Bart Hengeveld, and Richard Banks. 2016. From research prototype to research product. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, pp. 2549-2561. ACM.
 12. William Odom and Tijs Duel. 2018. On the Design of OLO Radio: Investigating Metadata as a Design Material. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM, New York, NY, USA, Paper 104, 9 pages.
 13. William Odom, Ron Wakkary, Ishac Bertran, Matthew Harkness, Garnet Hertz, Jeroen Hol, Henry Lin, Bram Naus, Perry Tan, and Pepijn Verburg. 2018. Attending to Slowness and Temporality with Olly and Slow Game: A Design Inquiry Into Supporting Longer-Term Relations with Everyday Computational Objects. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM, New York, NY, USA, Paper 77, 13 pages.
 14. William Odom, Daisuke Uriu, David Kirk, Richard Banks, and Ron Wakkary. 2018. Experiences in Designing Technologies for Honoring Deceased Loved Ones. *Design Issues* 34, no. 1: 54-66.
 15. William Odom, Tom Jenkins, Kristina Andersen, Bill Gaver, James Pierce, Anna Vallgård, Andy Boucher, David J. Chatting, Janne van Kollenburg, and Kevin Lefevre. 2018. Crafting a place for attending to the things of design at CHI. *interactions* 25, no. 1 (2018): 52-57.
 16. Donald Schön. 1992. Designing as reflective conversation with the materials of a design situation. *Knowledge-based systems* 5.1: 3-14.
 17. Donald Schön and John Bennett. 1996. Reflective conversation with materials. *Bringing design to software*. ACM Press.
 18. Erik Stolterman and Mikael Wiberg. 2010. Concept-driven interaction design research. *Human-Computer Interaction* 25, 2: 95-118.
 19. John Zimmerman, Jodi Forlizzi, and Shelley Evenson. 2007. Research through design as a method for interaction design research in HCI. In *Proceedings of the SIGCHI conference on Human factors in computing systems*, 493-502.