

Slow Data and Healthcare Co-design: Exploring tensions through duoethnography and data physicalization

GEORGINA FREEMAN, TATIANA LOSEV, SHEELAGH CARPENDALE, BARRY WYLANT, and LORA OEHLBERG

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1 ABSTRACT

We are a multi-disciplinary group of health, design, HCI and data visualization researchers. We introduce the possibilities and tensions of slow data approaches in healthcare with older adults. We propose a design exploration of these possibilities and tensions using a duoethnographic approach that incorporates elements of slow data physicalization. The *Data as a Material for Design* workshop presents an opportunity to appreciate, discuss and critique concepts of slow data in healthcare to inform our future exploratory design of a physical data experience where physical materials represent personal health data.

2 INTRODUCTION

Researchers, designers and clinicians find that slowing down enriches practice, interaction, expression, and knowledge creation [10]. Our professional and personal experiences in healthcare, design, HCI and data visualization brought us together to consider slow data as a design concept that can be applied to technology-supported care of older adults. We aim to explore data as an experience for touch, expression, and interpersonal connections. For older adults and their care communities, data physicalization — a physical object encoded with data — provides a touchable interface that stewards a ‘gentle’ data experience [1]. Data is critical to the care of older adults because it represents the person, their health status and their care needs, which informs social and medical interventions that impact their health and well-being. Drawing from considerations of slow technology [2, 6] and personal physicalization [3, 11], we examine the possibilities and tensions of integrating slow data physicalization within the complex and deeply interconnected social health systems that impact people’s day-to-day lives. We see physicalization as a design conduit for slower interaction, for feeling one’s way through embodied data at a scale from fine motor interaction (sensing through touch with fingertips) to gross motor interaction (sensing with the whole body and moving through physical space). In the context of co-creating health information-sharing tools with older adults, physicalization offers a path to designing

Authors’ address: Georgina Freeman, georgina.freeman@ucalgary.ca; Tatiana Losev; Sheelagh Carpendale; Barry Wylant; Lora Oehlberg.

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1

tools that engender feelings of calm and peace. Here, data physicalization can be a means to understand and appreciate the experiences of older adults, from managing their health data to living with chronic disease.

3 TENSIONS OF SLOWNESS IN DESIGN AND HEALTHCARE

Healthcare delivery is driven by personal and population-level data, often represented by 2-D data visualizations. As co-designers in a health setting, we grapple with data use and representation within the constraints of the health system. Here, data sits between humans and the systems that care for them. Data is a mediator, used by care teams to inform medical decision-making, negotiate patient consent, and evaluate the impact of interventions. We exist in two seemingly opposing temporal spaces: in one space, time is scarce, data and decisions move quickly, and interventions provide timely care, address unmet needs, and prevent or mitigate harm. In the other temporal space, we slow down so people can better understand and relate to the data that interventions are based on. The tension lies between the fast-paced collection, sharing, and interpretation of data for healthcare service delivery, and the slower-paced, introspective experience of the deeper meanings and broader impacts of personal health data. These tensions are replicated in health technology co-design. Designers also use data to inform decision-making, communicate ideas and navigate user experiences. There are pressing needs for technologies and services to address gaps in care and keep up with increasing demands on our healthcare systems. But, these systems are complex, and require slow, thoughtful consideration of how new technologies and services will fit into peoples' lives and workflows. This is the central conflict of slow data in healthcare co-design: *How do we address the need for fast data and timely interventions while appreciating the value of slow data and deep understandings of people and complex systems?*

4 PROPOSED DESIGN EXPLORATION

We propose duoethnography as a means of exploring the relationships and tensions between slow data and design, human-centred design, person-centred care and the real-world challenges of designing health technologies with and for older adults. In addition, we will use data physicalization to materially ground our explorations of these tensions and better understand these relationships. Duoethnography is a method of exploring and juxtaposing the perspectives of two (or more) researchers through dialogue [8]. Duoethnography is a reflexive technique that allows researchers to critically reflect on their understandings of social phenomena [12]. Duoethnography challenges researchers to participate in a mutual and reciprocal self-interrogation to better understand both themselves and the phenomena under investigation [5, 12]. Duoethnography does not require that its author-participants find consensus or even a conclusion in its process, instead promoting a "not fixed but fluid" form of knowledge that exists in a "multivoiced and critical tension" [5, 9]. Complementary to the duoethnography, we will design and build a data physicalization inspired by the developing concept of slow data. We will engage with the tensions, contrasts, and practical constraints of slow data physicalization in the sphere of health information sharing with older adults. As a part of this conversation, we will build a data physicalization that will facilitate our discussion and grant us first-hand experience in interacting with data as material. This data physicalization will take on the role of a design probe [7] and a boundary object [4] that will deepen an understanding of our perspectives and explore the affordances of data physicalization specific to health. Figure 1. depicts one potential form this materiality-supported duoethnographic exploration could take.

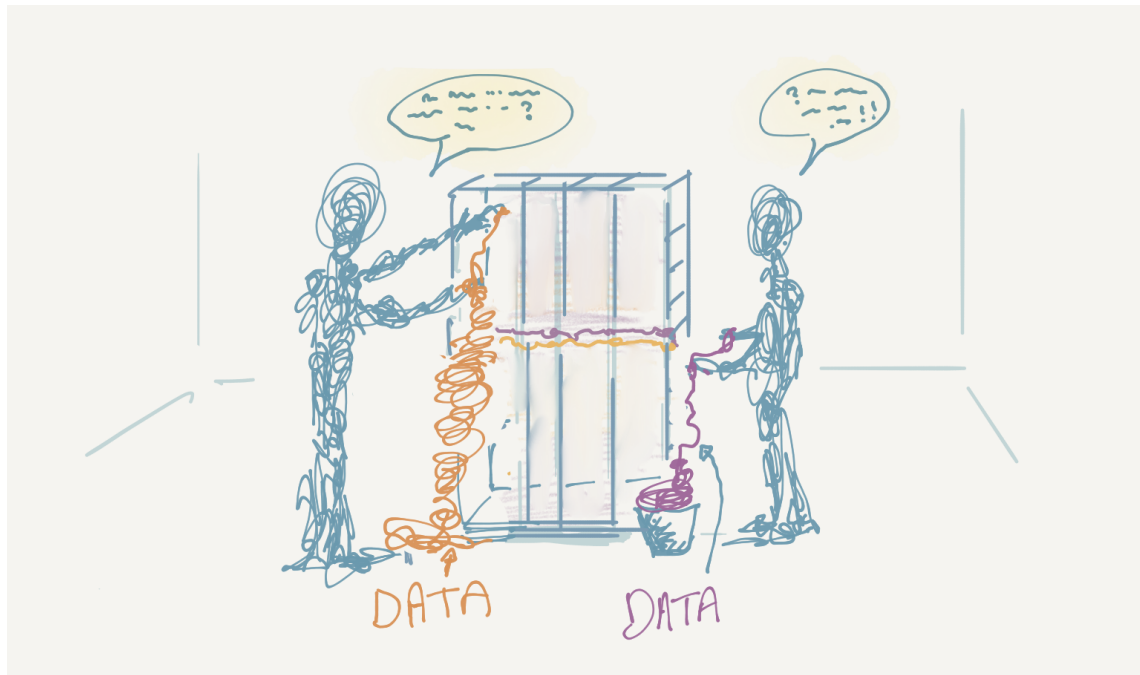


Fig. 1. Our proposed design exploration of slow data physicalization in healthcare

5 WORKSHOP GOALS

The workshop is an opportunity to share the developing concept of slow data physicalization and healthcare co-design. Through critical discussions, we look forward to broadening the scope of slow data for healthcare by leveraging the diverse perspectives of workshop participants to inform our future exploration.

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