Reconsidering Impact in HCI: Bridging HCI Design Research and Public Health Science

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As a human-computer interaction researcher with an appointment in Waterloo's School of Public Health Sciences I work at the intersection of health and technology. We offer professional Health Informatics and Health Evaluation programs, and I work to translate research findings between the two communities: understanding how technology can improve health (e.g., [1, 3, 4, 5, 9]), and appropriating concepts from health to inform the design of technology (e.g., [2, 6]). To date, my work has touched on a variety of public health topics including mental health, nutrition, substance use, and communication. And while I haven't formally researched implementation science, a common theme of my work is understanding how technology can be used to promote health and well-being.

1 Case Study: Food Literacy Heuristics

This year at CHI we will be presenting recent work [2] on developing heuristics for food literacy — the awareness, knowledge, behaviours, and skills required to obtain a nutritious diet — with the goal of encouraging use by human-computer interaction researchers and practitioners. We developed a set of 20 heuristics through an iterative process comprising a literature and technology review, followed by a series of evaluations and interviews with nutrition and human-computer interaction experts. Our hope is that by creating these heuristics, the people creating food-related technologies like grocery shopping websites, meal preparation kits, restaurant menus, and beyond will be able to better integrate knowledge from the nutrition literature into their work.

However, during our interviews we identified some tensions between the perspectives, motivations, and goals of human-computer interaction researchers and the nutrition experts:

1. **Lack of Awareness** Many human-computer interaction researchers were not aware of the nutrition concerns addressed by our heuristics. While this lack of awareness was somewhat expected, it further demonstrates a need to educate software developers themselves about food literacy. We interpreted these findings as indicative of HCI's inclination towards technosolutionism and the need for cross-pollination between siloed research communities [8].

2. **Empowering Individuals vs Population-level Interventions** While HCI practitioners often develop technologies from a user-centred or individual perspective, the nutrition community approaches their guidance as a population-level intervention. In short, HCI is focused on what we *can* do, whereas nutrition is focused on what we *should* do. For instance, some of our HCI experts argued that technology should not be designed to limit consumers' choices, whereas nutrition experts and public health practitioners express concerns about over-exposure to ultra-processed foods and the burden of non-communicable diseases caused by unhealthy dietary patterns.

3. **Misconceptions about Health** Finally, some comments from our HCI experts are concerning from a nutrition perspective, such as those normalizing the consumption, promotion, and marketing of ultra-processed foods for children. For instance, two of our participants gave examples of shopping with children as a reason for *not* limiting ultra-processed foods, as their parents would want to buy those products for them.

2 Discussion at the Workshop: Bridging Research Cultures

I would argue that SIG CHI a *design* community, and Public Health is a *scientific* community. And so while I absolutely agree that both fields have commonalities in foci and methods, I do not believe that their goals are the same.

During my time in public health I've come to think of the differences between the two fields as *HCI ends where IS begins.* That is, in practical terms HCI research tends to focus on on introducing novel (pre-clinical) technological proofs-of-concept [14] rather than demonstrating efficacy or effectiveness. On the other hand, the efficacy and effectiveness of those interventions in terms of health outcomes are exactly the focus of IS research, and incremental and iterative contributions are not only accepted, but are necessary. HCI research is concerned with showing some new and exciting application of technology, whereas public health research strives to prevent disease, prolong life, and promote human health.

And these differences impact the kinds of research we are able to publish in HCI venues. If you submit an 'IS contribution' to an HCI conference like CHI you will inevitably have a reviewer say "this is not HCI.... reject". But more than that, they impact the types of contributions that HCI research can offer to others outside our field. HCI contributions tend to emphasize prototype development and short-term field studies, which some might even

call *dogmatic* or *harmful* [15]. We notoriously avoid theory development [7], replication studies [10], bibliographic research [12], long-term efficacy studies and RCTs [14], and many other contributions that are considered essential components of a healthy research ecosystem in fields like health.

But I also believe that these differences have been a *choice* made by the HCI community, particularly when considering our origins in human factors research (e.g., [11]) which continues to align well with implementation science. Indeed, the predominance of computer science researchers in the SIG CHI community have led us to adopt their criteria for success, like the number of papers published and competitive acceptance rates at our top conferences, and contributions that emphasize technological development over their impact on the people they are designed for (e.g., [13]). Our choices led us to our current culture, but we can also choose to change.

And that is why I am interested in attending this workshop — I am excited for the opportunity for cross-disciplinary sharing of commonalities between the two fields, networking, and discussion. But more broadly, I hope it provides a place to start talking about impact in HCI, on how to expand the audience for our work, to consider the limitations of our current research community and processes, and to begin developing a critical mass of HCI researchers at the intersection of public health and HCI. Perhaps most importantly, I am excited to think about HCI research that is driven by goals like those embodied by the public health, and which engages directly with groups who can help translate research findings to policy and practice.

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