Improving Public Engagement in HCI: Lessons from Health Research and a Roadmap for Translation*

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Abstract
Public participation in the design of research ensures that studies are relevant, ethical, and impactful. The discipline of Human-Computer Interaction (HCI) is anchored in the study of human engagement, yet the level of influence that public stakeholders have on the direction HCI research itself varies widely. In this paper, we argue that intentionality and clear reporting around public participation, including which stakeholders have been involved in research design, the roles they have played, and how their input has shaped research decisions is essential to rigor, replicability, and accountability in HCI research. Other research disciplines, notably health and social sciences, have established successful frameworks that guide planning, reporting, and evaluation of public participation in research design. In this position statement we argue the need for a comparable engagement framework tailored to the unique needs of HCI researchers, and we propose a 3-step pathway towards this tool's development and deployment.

Keywords
Public engagement, public participation, participatory research, participatory design.

1. Introduction: Nothing About Us Without Us

Public participation in research refers to the active involvement of individuals and communities who are affected by an area of research or innovation, across the design lifecycle. Participation in research decision-making can range from consultation (e.g., gathering public input; user-testing) to collaboration or shared leadership (as seen in co-designed and community-led research initiatives). At the higher levels, public participation aims to ensure research is more relevant, ethical, and impactful to communities by expanding their role from being the *subjects* of research to *partners* in its execution. This philosophy aligns with the principles of self-determinism and participatory democracy (e.g., the call for "Nothing about us, without us" in disability rights activism), as well as participatory research paradigms such as action research [1], implementation science [2], citizen science [3], and 'in the wild' studies [4], which are all enjoying growing popularity in the HCI discipline.

The International Association for Public Participation's IAP2 Spectrum [5] is a widely used framework for categorizing different levels of public participation in decision-making, including in research. Each level represents an increasing degree of influence that participants have over decision processes and outcomes, ranging from being informed, consulted or involved in key decisions (levels 1-3), to collaborating as partners (level 4) or being empowered as primary decision-makers (level 5). An implicit assumption in linear engagement models like the IAP2 Spectrum is that 'empowerment' (where participants take full ownership) is a natural progression and end-goal of public participation. However, public engagement in HCI research is known to be dynamic, non-linear, and complex [3, 6]. Consequently, a critical and contextualised framework is required to guide and benchmark good engagement practice within our unique discipline.

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1.1. The Value of Meaningful Public Participation

Studies from the adjacent field of health show that engagement with public stakeholders as research partners can help teams define relevant and sensitive research questions, design comprehensible research materials, and craft inclusive methods for diverse participant groups [7]. Empowered co-researchers also deliver key insights for data analysis and shape public dissemination [7]. We have found this to be true of our own public partnerships in research on assistive technology for recreation [8] and communication [9], women's health [10], and personal health informatics for sensitive and stigmatized conditions [11]. Such observations reinforce the claim that meaningful engagement of public stakeholders in decision-making about HCI research is a worthy pursuit.

While the HCI discipline is known for its active engagement of end-users in prototyping and pilot-testing, critics observe that real-world scaling, implementation or evaluation of technology projects is rare [12, 13], and that long-term engagement with communities in situ is even rarer [1]. A key example of this is seen in sign-language translation gloves, a technology widely criticized for misunderstanding the whole-body nature of signed languages, reinforcing misconceptions about signed communication, and undermining evidence-based accessibility measures like professional sign language and captioning [14]. The persistence of sign language glove projects despite ongoing critique from the Deaf community highlights the absence of rigorous, meaningful, and community-led engagement at the earliest stages of technology research, and the expensive and misguided solutions that can result.

Breaking this trend, a growing number of HCI researchers are turning to participatory methods to improve their research scalability and impact [1]. A highlight example of this is an action-research study co-led by community members in remote Argentina, where citizens produced a digital archive of historically significant sites in their town [1]. Reported project outcomes included awareness-raising through media, government recognition, policy changes in the Ministry of Education, and the initiation of heritage restoration works at some sites. Engaging in the project also built citizens' digital capability, instilled a sense of solidarity and community pride, and created a new forum for social encounters [1]. The *Finding Places* project in Hamburg [15] also used participatory design to engage citizens in identifying refugee accommodation sites, leveraging the CityScope platform from MIT Media Lab. By integrating public stakeholders through interactive workshops, the project improved scalability, processed complex spatial data efficiently, and fostered community trust. Together, these examples highlight the value that public parties can offer in the design of successful research methods and the impactful translation of research findings to real-world settings.

Not all engagement is good engagement. When implemented without due care, public engagement practice in research may be exploitative, tokenistic or even harmful. One such example comes from research into predictive policing, where a lack of attention to diversity and meaningful power-sharing in public consultation can result in a false sense of inclusivity, while outputs continue to harm vulnerable populations [16]. Specialist trauma-informed approaches may be needed for safe and respectful engagement with marginalised technology stakeholders, as reported in research with trans people, survivors of intimate partner violence, or victims of identity theft [17]. Such examples underscore the urgent need for more evidence and transparency surrounding these practices.

1.2. The Need for A Tailored Participation Framework

Several frameworks supporting user engagement in digital system design already exist. For example, having reviewed conceptualisation of user engagement across 351 HCI publications, Doherty and Doherty [12] presented a suite of consolidated design principles for managing and evaluating user engagement with digital systems. Similarly, Buschek and colleagues [18] proposed a framework for HCI researchers to improve conceptual clarity in digital systems design. Finally, drawing on the discipline of implementation science, Waddell et al. [2] reported how the NASSS framework (Nonadoption, Abandonment, Scale-up, Spread, and Sustainability) had assisted in scaffolding the large-scale implementation of a digital women's health promotion intervention, including the team's engagement with diverse and distal stakeholder groups. While all three of these papers draw

attention to way users can meaningfully shape the quality of resulting systems (e.g., explainability, accountability, usability, or community value), none of these papers positions users as active partners in *research* planning, governance, or reporting processes per se.

Critical commentary on public participation in HCI research decision-making is sparse. As one exception, at the conclusion of their action research project in rural Argentina, Balestrini et al. [1] posed five recommendations for HCI researchers embarking on community-engaged projects. These included: i) facilitating community ownership by engaging early with stakeholders and targeting valued outcomes; ii) utilising existing and familiar technology solutions where possible; iii) creating opportunities for ongoing, face-to-face social encounters, iv) providing clear instructions for public participants, and v) soliciting broad media coverage. While these factors were viewed as keys to success in Balestrini and colleagues' work, they are yet to be validated for other HCI project contexts.

1.3. Lessons From Health

Recent years have seen the emergence of structured tools and frameworks that guide health researchers in planning, conducting, and evaluating public involvement in their research at all project stages [19]. Additionally, reporting guidelines for health research, including the GRIPP-2 checklists [20] help to standardise the reporting of public engagement, ensuring transparency and comparability across studies. Collectively, these frameworks enhance the rigor of research engagement in health by making processes more structured, reflective, and accountable.

The field of HCI, despite its diverse participatory methods and rapid engagement cycles, lacks a comparable, widely accepted framework for reporting and evaluating public involvement in research design. As human-computer interaction (HCI) increasingly adopts participatory approaches, there is an opportunity to learn from developments in adjacent disciplines such as health and create a participation framework tailored to the needs of HCI researchers. Such a framework could ensure that public participation is not only well-documented and replicable, but also meaningful, ethical, and sustainable for the entire community. Below, we propose a three-step process for the development and deployment of a comparable participation framework for HCI research.

2. Step 1: Defining Public Participation in HCI Research

It is common in HCI research that companies, institutions, or researchers frame the problem space before engagement begins, limiting the scope of community influence. Conflicting priorities and expectations between key stakeholders may also need to be reconciled [6]. HCI projects may also transition between levels of engagement depending on available resources, stakeholder capacity, technical feasibility, ethical or regulatory constraints, and the relative value of technical expertise versus real-world insights at any given timepoint [3, 6]. Additionally, even when stakeholder participation is solicited and supported, researchers cannot guarantee the quality, quantity, or potential bias of these inputs [3, 15], and participant roles can be difficult to define [15]. Any public participation framework intended to guide HCI researchers must be sensitive to these and other unique constraints within the discipline.

Given that power and engagement conditions may be re-negotiated multiple times across the timeline of HCI projects, we believe research teams would benefit from a flexible engagement matrix that supports reflection on, and documentation of, different levels of participation at different project stages. For this, inspiration might be drawn from approaches to documenting protocol deviations and adaptations commonly used in health research (e.g., FRAME - [21]). Finally, given the diversity of methods used in HCI, a modular framework structure may also be required. Inspiration for this could be drawn from PRISMA extensions for evaluating methodological rigor in health research, where core elements remain constant, but additional criteria are added based on study type.

While this integrative review highlights general considerations for planning, evaluating, and reporting public engagement in research, HCI-specific guidelines are sorely needed. We propose 17 initial trigger questions across 6 core domains as a starting point for a Public Participation

Framework for HCI research (figure 1). These require further exploration and validation with the HCI community as outlined in Steps 2 and 3 below.

Suggested domains for HCI Public Participation in Research Framework

1. Research context
    - What is the HCI problem being addressed?
    - Who has defined the initial problem space and research aims?
    - Who are the relevant stakeholders (users, communities, policymakers, developers)?
2. Engagement approach
    - What methods were used to engage the public at each stage of the research?
    - How were co-researchers or consultants selected and involved?
    - What is the evidence behind the engagement approaches used? How was rigor maintained?
    - How (and why) did engagement methods change over the course of the project?
3. Impact on research and design
    - How did engagement influence design decisions?
    - What trade-offs were made based on user/community input?
4. Community and industry impacts
    - What was the impact of the research (positive or negative) on relevant communities and sectors?
    - How have research processes and findings been communicated to the public?
    - How have research findings been translated or implemented in the real world?
5. Ethical and practical considerations
    - Were there ethical dilemmas (e.g., privacy, digital divide, accessibility)?
    - What were the risks or costs of the research, and who carried these?
    - Were there power imbalances in engagement? If so, how were they addressed?
6. Future directions
    - What aspects of public engagement worked well, and what could be improved?
    - How can future HCI research build on these insights?

Figure 1: Suggested domains for HCI Public Participation in Research Framework

3. Step 2: Constructing a Public Participation Framework for HCI Research

For a public engagement framework to align with HCI research needs, values, and realities, it must be co-designed by representatives from across the HCI community. A first step could be consulting 2025 Meta-CHI workshop participants to identify: (a) methodological and reporting gaps in public engagement, and (b) key tensions, such as balancing depth of engagement reporting with feasibility and publisher constraints. This groundwork could then expand into focus groups or co-design sessions involving key stakeholder groups, including HCI researchers (academia and industry), HCI practitioners (design and production teams), community partners (mainstream and marginalized groups), participatory design practitioners, publication venues (flagship HCI journals and conferences), and peak disciplinary bodies.

4. Step 3: Framework Validation and Dissemination

As a final step, the framework prototype should be tested across diverse live research projects to assess its relevance, usability, and impact on engagement rigor. To ensure uptake within the CHI community, key strategies could include: (a) open-access practice checklists and reporting guidelines (inspired by GRIPP-2 [20]), (b) collaboration with journal editors and conference organizers to

integrate the framework into HCI publication and review standards, and (c) dissemination through major HCI forums, including future Meta-CHI events.

5. Conclusion

In this position paper, we have demonstrated that meaningful public engagement is essential for ensuring HCI research is impactful, ethical, and responsive to real-world needs. Ultimately, we believe that in co-designing a tailored engagement framework as a community, we can strengthen methodological rigor, improve reporting practices, and foster more effective, inclusive, and scalable research across the HCI discipline.

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Declaration on Generative AI

OpenAI's GPT4-o was used in the preparation of this manuscript to support a) supplemental search for relevant literature, and b) final editing and shortening of text. The authors reviewed all material prior to submission and take full responsibility for the content.

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