

This is a forum for perspectives on designing for communities marginalized by economics, social status, infrastructure, or policies. It will discuss design methods, theoretical and conceptual contributions, and methodological engagements for underserved communities. — Nithya Sambasivan, Editor

An Intersectional Approach to Designing in the Margins

Sheena Erete, DePaul University, Aarti Israni, DePaul University, Tawanna Dillahunt, University of Michigan

We need to acknowledge, respect, and identify the ways in which participants [from underserved communities] can disrupt research. —workshop participant, “Reflection on Design Methods for Underserved Communities,” CSCW 2017

Recent HCI studies have emerged to account for the experiences and needs of underserved populations [1,2,3,4]. Focusing on members of these groups has led to the use of participatory design methods, which engage users as equal partners in the design process. However, we find that traditional research design methods (e.g., interviews, surveys), and even those participatory in nature, at times do not match the needs of our participants, leading to questions regarding the effectiveness of these methods among certain populations. Many of these methods do not account for the challenges faced by communities that have systematically experienced discrimination due to unfair policies and social practices.

Such populations have traditionally been marginalized in technology design. Yet there is a growing opportunity to design technologies that support issues such as economic development [1], health and wellness [4], and political engagement [3] in underserved communities. Given the growing interest in designing technologies that address challenges faced by underserved communities, it is important to understand how to

adapt design methods that better attend to the complexities (e.g., historical context, power relations) that impact participants’ ability to engage as equal partners in inclusive technology design.

Toward identifying best practices to support successful approaches to designing with underserved populations, we held a workshop at CSCW 2017, “Reflection on Design Methods for Underserved Communities,” with 17 researchers who employ HCI research and design methods to address the needs of these communities. The primary goals of this workshop were to discuss our experiences and challenges when using HCI design methods with underserved communities and to collaboratively develop new methods and guidelines for the design process. Participants were divided into groups of five or six and were asked to discuss and document the challenges they had faced when working with their target populations, and the

lessons learned in the process. Participants were later asked to brainstorm strategies to overcome the challenges that had surfaced in prior discussions. After each discussion, participants reported the insights that emerged to the rest of the group, prompting a larger group discussion about universal challenges faced when designing with marginalized communities and ways to address them. Three primary takeaways emerged from these discussions.

It is essential but difficult to adapt appropriate design and research methods to support underserved communities. Most participants agreed that research methods must be tailored to support the unique needs of marginalized communities, but there was overwhelming doubt about when, why, and how methods should be adjusted. While participatory design methods (e.g., photo elicitation, prototyping) seek to engage participants in the research and design process as co-researchers, there are still challenges in fostering agency among members in underserved communities. For example, in populations with low sociotechnical backgrounds, members may have limited knowledge of or exposure to technology, and consequently may lack the skills or confidence to participate in technology design. Working with members of these communities then entails developing an understanding of their skills, abilities, and perceptions toward technology and adjusting methods

Insights

- Traditional design methods typically do not support the co-design process with underserved communities.
- By exploring the historical context, engaging in self-reflection, and attending to dissenting opinions, we as designers and researchers can better design technologies, practices, and policies for the intersectional experiences of those in underserved communities.

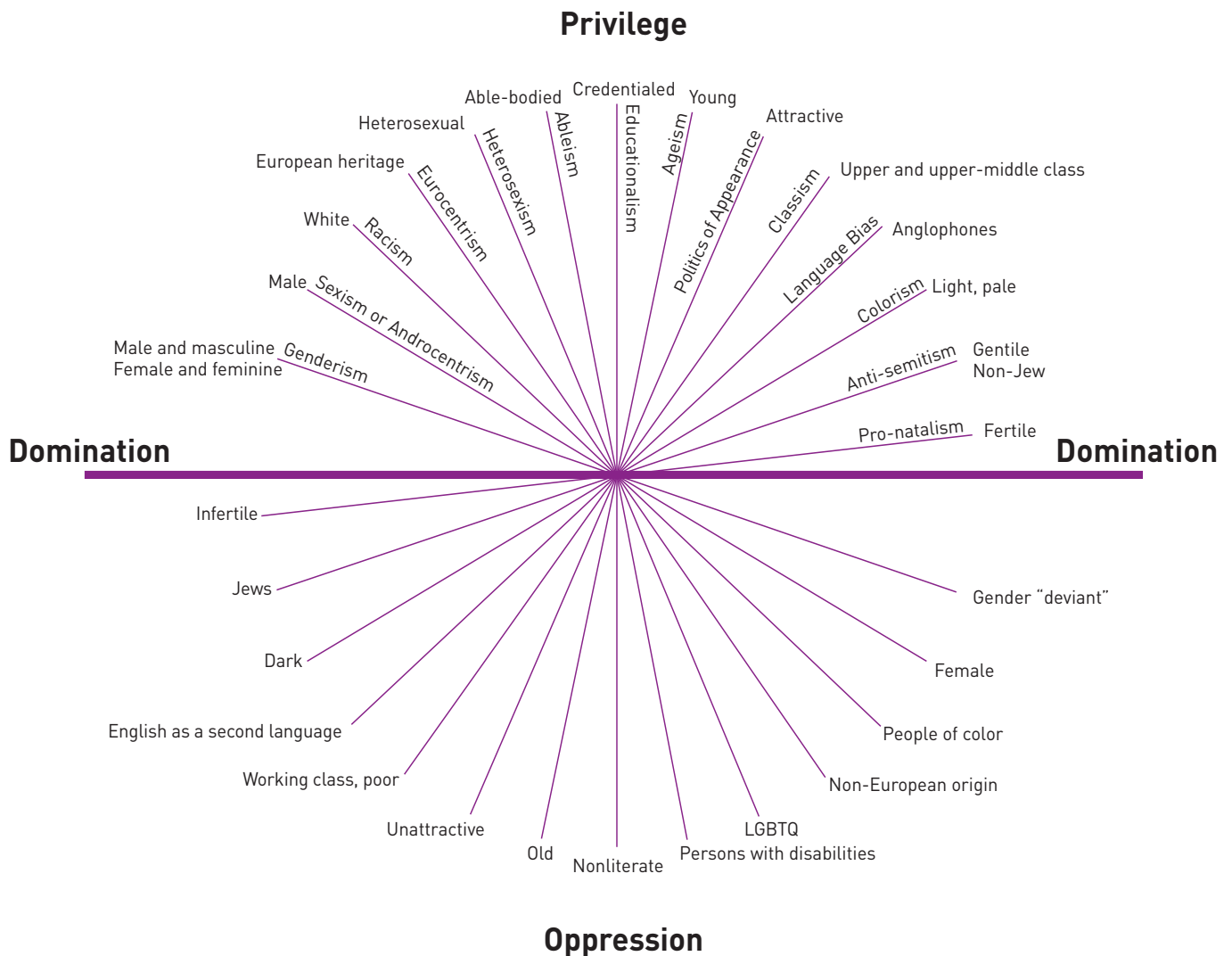


Figure 1. Intersecting axes of privilege, domination, and oppression. Adapted from [7].

to lower barriers to participation. Several workshop participants described how they modified traditional design methods; these modifications were not systematic and repeatable, but rather spontaneous and based on their experience in designing technology. Researchers, for example, must ensure that the language used during research engagements resonates with the community and is easily understood. Participants expressed the importance of using written and spoken language (e.g., IRB forms, interviews) that is “legible and not scary” to community members. Determining how and when to adjust language was not as clear. Additionally, participants

acknowledged that their own biases could impact research processes and emphasized the importance of continual self-reflection when working with underserved communities.

Engaging underserved communities in contributing and owning project goals and outcomes is vital but not

As researchers, we must develop a shared understanding of the problems that are relevant to a community.

easy. As researchers, we often have goals, assumptions, and even expected project outcomes before partnering with a community. In many cases, funding requirements dictate the need for established goals or projected outcomes prior to a project’s commencement. However, workshop participants discussed the importance of engaging community members in defining the goals and outcomes that are important to them. As researchers, we must develop a shared understanding of the problems that are relevant to a community. But how do we align our outcomes given our funding obligations and other responsibilities that drive our

ACM Journal on Computing and Cultural Heritage



ACM JOCCH publishes papers of significant and lasting value in all areas relating to the use of ICT in support of Cultural Heritage, seeking to combine the best of computing science with real attention to any aspect of the cultural heritage sector.



For further information
or to submit your
manuscript,
visit jocch.acm.org

FORUM | THE NEXT BILLION

research questions? Workshop participants suggested the need for long-term community partnerships, not relationships established only for the duration of a project. Through long-standing relationships, trust will emerge as the community's and researcher/designer's needs transform over years. These long-term partnerships would ideally lead to joint grant applications and new funding models.

Responsibly engaging stakeholders in research and design takes time and trust. Members from underserved communities may be hesitant to participate in research, and building trust and rapport takes time. With an eye on building rapport and trusted relationships in their target communities, workshop participants voiced the importance of attending social events within the community, constructing research goals that align with community needs, and creating short-term wins that benefit community members. The key to these relationships is to continuously strengthen the relationship, recognizing the fragility of the trust that is being established. Thus, researchers should focus not simply on building rapport at the beginning of the research study, but instead on creating sustainable, reciprocal relationships that last far beyond the research study. Researchers should follow through on their promises to share their findings in a meaningful way and create technologies that are not removed at the conclusion of a study. Workshop participants also discussed the importance of recognizing that the experiences researchers have with members

of underserved communities persist much longer than the study itself, thereby impacting future researchers. Future research can explore how past experiences in design impact underserved participants' willingness to engage in future design.

CALL TO ACTION

As researchers committed to equitable and inclusive technology design that accounts for the needs of marginalized communities, we will be the first to admit that we do not have a blueprint for how to engage with all communities. However, based on our review of existing literature, our experience conducting this research, and the lively discussions that ensued during the workshop, we see several opportunities for researchers to better engage with such communities.

Recent HCI studies have taken an intersectional approach to exploring how the design process can be improved [5,6]. Intersectionality is a framework that considers the various backgrounds and personal experiences that shape the lives and outcomes of marginalized populations, defined by factors including but not limited to race, gender, and class. Intersectionality suggests that people have unique experiences based on the combination of their identities and that it is impossible to understand discrimination and oppression by considering one singular identity, especially given that institutions have used identity to discriminate against some and privilege others (Figure 1). Drawing on intersectionality, we propose three principles that support an inclusive approach to technology design. By using a lens of intersectionality, we have the ability to examine individuals' experiences and identities in relation to power and privilege. We can draw on its framework to create principles that help scholars operationalize approaches to identifying systemic oppression due to inequalities that may exist at the institutional or structural

By using a lens of intersectionality, we can examine individuals' experiences and identities in relation to power and privilege.

level of society for any combination of identities.

Understand and attend to context. Existing literature has highlighted the importance of accounting for context in technology design [3,6]. The communities we partner with are entangled in social, cultural, and political histories that impact their ability and motivation to engage in research and design. As our workshop participants noted, members of underserved communities may initially be hesitant to participate in research and design, and may even be skeptical about the role of research in their community due to histories of marginalization. Additionally, with limited exposure to technology, members may not feel that they have the prerequisite skills or knowledge needed to engage in design research methods. As researchers, it is essential that we understand and attend to the surrounding context of these communities. We suggest that researchers go beyond exploring the demographics and the challenges faced by members of underserved populations. Instead, to understand their local context, HCI researchers and designers should consider design methods, or even icebreaker activities, that delicately expose the various identities present, the historical oppression that may have been faced as a result of those identities, and the resilient ways in which members of underserved communities have overcome those challenges. For instance, in one of our participatory design sessions in a resource-constrained Chicago neighborhood, we asked residents to engage in a mapping activity to identify the environmental assets and challenges in their community. We then asked participants to describe the history and context of the assets and challenges from their perspective (e.g., why these were assets/challenges, the stakeholders involved, the history of local engagement with the assets/

challenges). While the use of a mapping activity in participatory design is not novel, it is an example of how design methods can be adapted to understand the context and perspective of an underserved population. By using an intersectional approach, designers can better understand when and how such methods and activities can appropriately engage *all* individuals.

Self-reflect, self-reflect, self-reflect. In the HCI community, reflexivity has emerged as an approach for researchers to continually reflect on our identity, values, assumptions, and all the subtleties in our interactions with participants that may impact the design research experience [8]. Workshop participants acknowledged the impact of their own biases to research processes, but how frequently do we acknowledge this in our work? Self-disclosing information about aspects of our identity and positionality, and potential impacts to the design research process, also helps improve the transparency and understandability of our research [6].

Attend to and disclose dissent. It might be tempting to try to avoid conflict during a research project. However, conflict is likely to occur when working with underserved communities, particularly when members have histories of fighting for recognition of their interests (e.g., power, economic equality) [2,8]. Attuning to these voices of dissent and any tensions that may occur during the design research process helps to ensure everyone's interests are represented. Disclosing information about the tensions and conflicts that occurred during a project and the ways in which these adversities were overcome can also help future researchers in their attempts to address similar adversities.

Using intersectionality to understand the history of oppression and discrimination among those who have traditionally been underserved can help us develop approaches to design that support equity, diversity,

inclusion, and social justice for marginalized and disenfranchised individuals. In this article, we propose three principles—context, self-reflection, and dissent—that, when applied to design, can ultimately improve the experience of underserved populations whose members engage in the design process.

ENDNOTES

1. Dillahunt, T.R. Fostering social capital in economically distressed communities. *Proc. of SIGCHI '14*. ACM, 2014.
2. Dombrowski, L. Socially just design and engendering social change. *Interactions* 24, 4 (2017), 63–65.
3. Erete, S. and Burrell, J.O. Empowered participation: How citizens use technology in local governance. *Proc. of CHI'17*. ACM, 2017.
4. Saksono, H. et al. Family health promotion in low-SES neighborhoods: A two-month study of wearable activity tracking. *Proc. of CHI'18*. ACM, 2018.
5. Fox, S. et al. Imagining intersectional futures: Feminist approaches in CSCW. *Proc. of CSCW'17*. ACM, 2017.
6. Schlesinger, A. et al. Intersectional HCI: Engaging identity through gender, race, and class. *Proc. of CHI'17*. ACM, 2017.
7. Morgan, K.P. Describing the emperor's new clothes: Three myths of educational (in-) equity. In *The Gender Question in Education: Theory, Pedagogy, & Politics*. Westview Press, Boulder, CO, 1996, 105–122.
8. Le Dantec, C. and Fox, S. Strangers at the gate: Gaining access, building rapport, and co-constructing community-based research. *Proc. of CSCW'15*. ACM, 2015.

Sheena Erete is an assistant professor in the College of Computing and Digital Media at DePaul University. Her work focuses on designing with underserved communities to address issues such as violence, political engagement, and STEM education.
→ serete@depaul.edu

Aarti Israni is a user experience researcher who applies UCD to address social challenges faced by those in underserved communities. She has a master's in human-computer interaction, and experience in research and design.
→ aisrani2@gmail.com

Tawanna Dillahunt is an assistant professor in the School of Information at the University of Michigan. She designs, implements, and evaluates socially innovative technologies that aim to address challenges faced by underserved populations, such as unemployment and social isolation.
→ tdillahu@umich.edu