

# Working with Women in ICTD

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## ABSTRACT

The fifth Sustainable Development Goal instituted by the United Nations in 2015 presents a call for gender equality, targeting the elimination of “*discrimination, violence, and exploitation against women*”. We present an analysis of recent conversations within the Information and Communication Technology and Development (ICTD) community aiming to identify ways in which the community might approach conceptualizing, designing, and deploying ICTs to address vital concerns in this regard. We also articulate ways to frame and address key challenges moving forward through more holistic and sustainable approaches, greater engagement with diverse stakeholders, and evolved methodological toolkits.

## Keywords

ICTD; Gender; Sustainable Development Goals

## Categories and Subject Descriptors

H.5.m. [Information Interfaces and Presentation (e.g. HCI)]: Miscellaneous

## 1. INTRODUCTION

Promoting gender equality has been proposed by the United Nations as the fifth among seventeen Sustainable Development Goals (SDGs) to be achieved by 2030 [14]. With regards to technology adoption, the participation of women in user research, design, deployment, and use has historically been limited, also acutely restricting the possibilities that the technologies in question might afford. Even though recent decades have seen a growing focus on the development of information and communication technologies (ICTs) for addressing women’s needs, the impact of these technologies remains limited due to prevalent, limiting gender norms, defeating—to large degree—the underlying motivations for the conceptualization and design of these technologies (*e.g.*, [1]).

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To shed light on these limitations and forge a path forward, we present an analysis of discussions that took place at the Information and Communication Technology and Development (ICTD) conference in Ann Arbor, Michigan in 2016. These discussions aimed at drawing on and informing the experiences of those conducting research in the field and were shaped by three main questions. The first called for examining core challenges afflicting the design and deployment of technologies aiming to combat gender inequity. The second drew attention to sociocultural factors and how we might engage societies towards a gradual mitigation of their impact. The final question asked how we can leverage effective methodological tools and techniques to circumvent challenges raised by gender-driven concerns.

Our goal in presenting this analysis is twofold. First, we aspire to invite more scholars, researchers, designers, and professionals into the feminist HCI and ICTD community and discussions taking place. Second, by gathering points of view from a diverse group of knowledgeable participants, we also aim to contribute to the important process of consolidating insights and aspirations related to the topics at hand that are currently scattered across many different bodies of literature.

## 2. METHODOLOGY

Our discussions were organized on three main conversations in multiple groups, after each of which we came together to debate, summarize, and reflect. Twenty-five researchers and practitioners engaged in these discussions, drawing on knowledge from a wide array of domains that included human-computer interaction, networking, social computing, accessibility, women’s studies, post-colonial studies, and user experience design, among others. We aimed to be inclusive, recruiting participants who were junior and senior, (identified as) male and female, and from multiple countries. We also encouraged those with experience serving historically marginalized communities and differently-abled populations to participate.

Jasmine captured notes and verbatim statements extensively during the session. She and Neha, with generous inputs from other authors, came together to analyze the data, first generating initial codes and then iteratively identifying themes presented in this paper. We attempt to shed light on all topics discussed, outlining what we as an ICTD community feel are key considerations and focus areas both for those working in the ICTD space, and also others who want to consider gender equity and women’s empowerment in work situated within other domains.

### 3. CORE CHALLENGES

To identify key reasons why technologies today fail to address concerns of gender inequity, we began by asking, “*What are the core challenges afflicting the design and deployment of technologies to combat gender inequity? How might we address them?*”

We discussed several ‘state-of-the-art’ technology initiatives that have been designed and deployed to address issues related to gender inequity, such as acts of violence against women that take place in a range of physical spaces (*e.g.*, workplaces, domestic settings, public places) and across a range of intensities [1, 4, 5, 11, 12, 13, 15]. We examined the experience of designing and deploying *Protibadi*, an app that targets the problem of sexual harassment in Bangladesh [1] by mapping harassment locations on a closed group network. This provided a strong focal point to ground the beginning of our discussion.

One fundamental theme that emerged was that even when focused on an emancipatory agenda, our approaches often do not bear fruit in ways that we intend. Part of the reason can be an inadequate or incomplete understanding of the problem by the researchers. When attempting to remedy one problem, our interventions might have the potential to create others. Participants suggested that we should address this issue by investing more time and effort into thinking critically and conceptualizing the matter we wish to focus on as a whole, engaging with the larger issues at hand rather than taking problems out of context and attempting to understand them in isolation. One participant shared, “*I’ve never experienced it because I’m not Indian. But I’m of Indian heritage so I understand...*” begging the question that if one is not Indian, how might one go about building this understanding?

Even when the research team possesses a clear understanding of the problem and needs, existing practices or patterns of technology adoption may not support the behavior change promoted by researchers or designers. Users may have high expectations of technological solutions, anticipating that problems will begin to dissipate once these solutions are introduced and adopted; this certainly does not always happen, and changes may only be visible in the short term. For example, while the design and development of *Protibadi* was geared towards taking a user-centered and participatory approach from the start, the technology did not see widespread adoption due to unanticipated constraints such as a lack of constant internet connectivity and too few users. While the urban women in the study had access to technology and were eager to make changes, the culture around installing new and novel mobile applications was not common among young adults and the expensive costs of internet access prevented many from utilizing the system.

Furthermore, it was discussed that when we design aiming for women’s empowerment, it is not just women themselves that we are designing for; we must also consider other stakeholders in the process who may act for or against the desired goals. Women often can only be empowered insofar as their broader networks support it. It is critical to include the perspectives of men, families, and other social actors when assessing context to enable all people interwoven into the social infrastructure to envision a shared solution. Members of the session suggested this may involve providing positive role models for women *and* men, generating “*how to*” guides, or presenting testimonials that feature male actors in supportive roles and not just portrayed as perpetrators of a problem. Different stakeholders must be in a position to visualize what possibilities exist and be able to come up with concrete examples of how they can help mitigate or avoid issues across a variety of distinct scenarios.

In sum, we discussed how we might address challenges in combating gender inequality by considering the use of technology as a

means to a desired end rather than the end in itself, as has traditionally been the case. Rather than aiming to directly solve a problem, we might first engage technology as a probe to better understand the sociotechnical context before designing for our intended purpose. This approach naturally may lengthen the time frame of a project; however, aiming for long-term rather than short-term solutions is ideal. What is needed, then, is an ongoing conversation between members of our community about how technology might serve as a medium for us to first learn about society and then enable us to use the resulting insights to tackle the problems or societal ills we aim to address. Otherwise we will find ourselves face to face with “*traditional norms or values that prohibit a behavior change on account of an information service*” as in the case of the example of *Protibadi* that we discussed early in the session [1].

### 4. SOCIOCULTURAL BARRIERS

Next, we transitioned our discussion to focus on larger societal factors by asking, “*What are the sociocultural factors that generate or exacerbate gender inequality in society? How might we engage the society towards gradual mitigation of these factors?*”

In order to understand the larger sociotechnical context, social and cultural factors must be brought to light so they can be duly addressed. Equal participation of women in technology adoption and use is a concern at a global level, but especially in societies of the “developing world” where patriarchal values overtly hold steady ground. We began this discussion by drawing the session’s attention to three projects from South Asia. The first, an ethnographic study in Dhaka, revealed the struggles of women as they aspired to learn repair techniques in a mobile repairs training center, typically a male-dominant environment [2]. The second study demonstrated how gender discrimination in academia impacts the quality of women’s participation in the tech industry where they face various forms of discrimination [3, 6]. The third project documented the experiences of women from India, Bangladesh, Sri Lanka, and Cambodia, focusing on their perceptions of their capabilities after completing a four-year ICT program [17]. Following these examples, we engaged participants in brainstorming around additional factors and disparate contexts based on their own experiences.

In examining this complex and multifaceted topic, our conversations addressed how people’s gender can lead them to be bound in different ways by various actors in their lives such as partners, families, and society at large. Our group concluded that we must always design keeping in mind that these networks are context-dependent. While certain issues themselves can be generalized, they manifest in nuanced ways across countries, cultures, and subcultures. Within a single environment, a woman may be bound greatly by one actor and empowered by another. Even the most well-meaning of parents, teachers, partners, and friends can unconsciously reinforce stereotypes and propagate inequalities at a systemic level. We observe this often in relation to women’s limited control of household resources such as mobile phones or money, among other things. Employing ICTs may help mitigate some of these factors. In addition, the ubiquity of certain technologies and platforms such as social media affords opportunities for promoting behavior change more consistently and in a more targeted manner that could gradually eat away at bigger issues over time. Women in positions of power, for example, could be positioned as more prominent role models with the help of ICTs so they might help make the path smoother and clearer for other women. A rich discussion arose around the possibility of designing technology to focus on more feminine values such as beauty or care instead of traditionally masculine ones such as speed and power, though not all were in agreement about which values were masculine or feminine.

## 5. EFFECTIVE METHODOLOGIES

Finally, we asked the question “*What could be effective methodologies for circumventing challenges raised by gender-driven concerns, perhaps ones that we might design? What might these require of the researcher or practitioner?*”

Participants emphasized that it is not enough to be aware of social and technical dimensions that could impact the design of technology initiatives; a number of methodological barriers can arise and intervene with research on gender issues and technology interventions. For example, access to women participants can be challenging to obtain for certain groups, especially in more conservative regions [1, 8]. Similarly, men may not be willing to engage with women researchers in some areas [9]. However, even when access is not an issue, a range of sociocultural barriers may complicate research objectives [1]. For example, when women in rural India are primarily secluded in their homes, their interactions with technology may become more difficult for us as outsiders to perceive and understand. Contrast this with men who lead significantly more public lives [1]. These distinct levels of exposure must be identified and taken into account by researchers and designers.

Penetrating the silence and under-visibility of women in more secluded environments may present an insurmountable barrier to an outside researcher or practitioner. While one aspect of this silence may be explained by grief, anguish, shyness, and sociocultural limitations imposed upon women, another may go even deeper and link back to limitations of language in offering appropriate expressions for the nuanced and unique emotions of women experiencing oppression [16]. Historically determined by male-dominated communities, the methodological dependency upon language, symbols, and expressions in knowledge production often constitutes a huge barrier to understanding gender-related oppression. Several such methodological concerns were raised in a session on being gender-aware in ICTD research at ICTD 2015 in Singapore [10]. We built on that discussion to further enrich our understanding of methodological hurdles and attempted to put forth ways to overcome or circumvent them to the extent possible.

Participants brainstormed and shared several methodological approaches we could certainly attempt to employ in ICTD research and design work. A handful of approaches, such as ensuring that there are female members on the research team and having a female interpreter from the community, are often easily attainable so long as researchers acknowledge them as necessary. Some participants also emphasized the importance of more women learning how to conduct research or to design and build technologies for themselves. This could significantly reduce the burden on external interventions for gender-related challenges. Other barriers may be more difficult to overcome, but so long as we can ensure reflexivity, participation, and communication in our approach, we can make steady and significant advances in this space.

## 6. DISCUSSION

Based on conversations, debates, and reflections that emerged throughout the session, we gleaned the following insights. Our analysis focuses on themes that surfaced as a general consensus among participants, and ties them back to related concepts and ideas that arose during the discussions.

### 6.1 Always Consider Gender

Notwithstanding the obvious bias of the attendees at the session, there was general consensus that it is important to think about gender—whether at the forefront or the back of our minds—no matter the project. Gender always matters, and taking gender into

account in framing our research questions, collecting and analyzing data, and designing solutions will ensure that we promote more balanced outcomes overall. In other words, ignoring the gender dimensions of a project can lead us to formulate research questions unsuitably, collect incomplete data, reach incorrect conclusions, or implement irrelevant designs. Looking through the gender lens, in particular, can shed light on the needs and constraints women have that are yet to be addressed throughout the research process.

### 6.2 Employ Holistic Approaches

Promoting the empowerment of women requires consideration of nuances around gender relations to solve problems in a holistic fashion. Technology alone is never enough to address these complex issues; solutions and interventions must consider deeply embedded biases present in stakeholders who are likely to interact with or be affected by them, and acknowledge how sociocultural, geographic, and technical contexts influence and are influenced by their presence.

Merely giving women access to certain resources, including technology, does not equate to having control of these resources. We must also closely examine and reveal gender bias ingrained in the values and practices that dominate the design, production, interaction, and recycling of technologies. Access is simply not enough to solve complex, systemic problems; women must also have the power to make decisions about when, how, and where to leverage these resources *should they wish to do so*. Until they have agency and feel empowered to be decision-makers in their own right, no technological solution will permeate the depths of gender issues we aim to address in a sustainable way. This does not mean, however, that we may not progress by targeting access first. An awareness of limitations is important nonetheless.

While ICTs can certainly contribute to addressing many gender barriers, the policy formation around ICT dissemination, distribution, and proliferation must be gender-sensitive. We must build policy frameworks at higher and lower levels, for both public and private sectors, to facilitate enhanced participation from individuals of all genders. For example, some countries officially require certain amounts of money are spent on making the workplace and various technological solutions sensitive to gender-related issues. Policymaking deserves more attention than it has been given in the ICTD community thus far.

### 6.3 Focus on Long-Term, Sustainable Impact

Empowering women favors holistic approaches over simple short-term solutions to have a lasting impact. Addressing the complexity of the issues at hand requires focusing on the roots of problems and sociocultural details of the larger contexts in which they live. Thus, for women to adopt and make sustained use of safety technology on mobiles, for example, they must be embedded in the mobile application ecosystem. Only if they know how and are accustomed to making use of mobile apps does it make sense to target this as a potential channel for assessment or intervention.

This also calls for a re-assessment of alternate agendas for sustainable development through a feminist lens. All United Nations SDGs engender questions around the distribution of responsibilities and benefits across genders, each of which has a unique history of struggle. Factoring in such justice requires a paradigm shift that incorporates proper changes in policies and laws and translation of them into practice. In addition to top-down interventions, we must also support ground-up change that engages the masses and ascribes respect to their natural and traditional practices. Carefully and appropriately designed technologies can play a vital role at both levels.

## 6.4 Practice Reflexivity to Address Biases

At an abstract level, reflexivity is key to effectively researching and designing in this space. People of all genders throughout the world maintain deeply embedded and sometimes implicit biases that contribute to patriarchal systems. Addressing gender-related questions requires sufficient reflection on the implications of these biases. Even if a project addresses issues that primarily affect girls or women, it is essential to consider how boys or men might also be included in the approach, whether actively or passively. Clearly communicating how different value systems, including our own, interact throughout the life of a project is critical for framing our approaches and articulating the spaces we work in. At the same time, larger representation of women in such research could also enrich our knowledge, both by adding important new perspectives as well as offering interpretations of reflective narratives of the “others”.

## 6.5 Engage Diverse Stakeholders in New Ways

At the core, we will never fully combat inequality without seeking to engage stakeholders in new and different ways. This includes people across all genders. Stories, testimonials, and narrative forms have the power to bring life to problems around gender inequality even for those individuals who may not experience such oppression regularly or at all. Leveraging these forms of communication may help us better communicate the value of our goals and proposed solutions to larger audiences and also get buy-in from those who hold power and influence.

Beyond engaging more and diverse stakeholders, members of the ICTD community could engage more deeply and meaningfully with each other by creating and referencing a shared set of resources that train people to critically analyze and articulate these issues. Being reflexive takes effort and often training to do effectively. A plethora of researchers, reviewers, and practitioners could benefit greatly from receiving training or referencing educational resources about how gender interacts with methodology, data analysis, interview dynamics, and other stages in the research process. In addition, researchers and practitioners could learn to identify the pitfalls of various methodologies across a range of contexts and adjust as necessary to use them in more gender-aware ways.

## 6.6 Develop Methods to Enhance Insights

While our current methodological toolkits do provide resources for exploring gender inequalities, there is room for improvement and experimentation. Adopting sound qualitative and quantitative research methods helps us as researchers to better address the issues at hand. Coupling good practice with a diverse representation in the sample and diversity of perspectives on the research team, we can provide more nuanced insights using the methods we are already employing.

Besides improving on current methods, it is our responsibility as ICTD researchers and practitioners to experiment with new methods that set higher standards for working with women and move beyond being merely sufficient. We must leverage methodologies that can accommodate longer-term and more nuanced examinations of environments, going beyond traditional interviews and ethnographic observation. Consistently extending our units of analysis beyond the scope of individuals can help us more deeply assess how gender roles play out differently across a variety of relationships. Leveraging multimedia for visually-oriented ethnography can more richly capture the details of our research contexts. We can tell stories in new ways and engage research participants through more immersive methods such as role-playing, community theater, or co-orientation exercises, among others.

## 6.7 Rely on Intersectional Perspectives

Today’s gender issues frequently intersect with women’s geographical, political, historical, and social contexts. The struggles of a tribal, old woman in Brazil in earning her livelihood can be starkly different from those of a young woman in urban India facing the fear of sexual harassment, for example. While the essence of marginalization is present in both contexts, it manifests uniquely. A unified effort to bring positive change to the lives of marginalized people requires careful examination of differences among their conditions so as to avoid the formulation and enforcement of universalized approaches to design, policy, and/or practice. This calls for deep ethnographic methodologies to be married with pragmatic measures—a school of thought still developing within the field of Human-Computer Interaction [7].

## 7. CONCLUSION

Moving forward as a community of researchers, designers, and practitioners requires us to band together and develop our existing approaches to better account for the nuances we face out in the field as far as gender is concerned. There are several areas that we highlighted for future exploration.

With regards to methods, we can begin contemplating what might be included in a ‘research and design toolkit’ that helps better account for issues around gender dynamics in ICTD work. Experimenting with new narrative and storytelling approaches for presenting information to various stakeholders, prototyping and testing out new methodologies, and generating tools that help us ensure our approaches thoroughly consider gender would all contribute to reaching our common goals.

Beyond methods, it is our responsibility to promote nuanced discussions around gender that move beyond the woman/man binary. Our analyses must take into account dynamics within and across research and design teams doing ICTD work, but also how these individuals’ worldviews interact with those of the community members they engage with across a variety of environments and relationships. We would also derive value from systematically examining which types of approaches yield the most sustainable solutions, along with defining what “sustainable” means to our community in this context.

Time it is then for us to take stock of our discussions and begin putting our insights into action. This note is not the first step, nor is it the last, but we certainly hope that it helps us contemplate valuable ways to move forward in unison.

## 8. PARTICIPANTS

The session was led by Neha Kumar, Syed Ishtiaque Ahmed, and Faheem Hussain, with assistance from Nova Ahmed. Jasmine Hentschel took extensive notes, which she led the analysis of. Other participants included Mike Best, Suzana Brown, Ineke Buskens, Tian Cai, Sam Castle, Yue Chan, Priyank Chandra, Nicola Dell, Michelle Fellows, Ali Hussain, Megh Marathe, Allan A. Martell, Amanda Meng, David Nemer, Ndumiso Ngidi, Sharath Chandra Ram, Gurpreet Rana, Dhanaraj Thakur, Aditya Vashistha, and Ellen Zegura.

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