8. Enabling Women's Digital Participation: The Case for Meaningful Connectivity

Radhika Radhakrishnan, Ana María Rodríguez Pulgarín, & Teddy Woodhouse

Abstract

This chapter explores the size and consequences of the digital gender gap in terms of meaningful connectivity to the internet. The Alliance for Affordable Internet (A4AI) defines meaningful connectivity (MC) on the basis of the connection speed, device functionality, data allowances, and frequency of use of a user's internet connection. By using this multi-dimensional approach to measuring internet access, A4AI arrives at a deeper and granular understanding of the connectivity gaps that keep people—especially women—from harnessing the full potential of the internet. We present survey results from nine countries where A4AI estimated levels of meaningful connectivity disaggregated by gender that would not have been visible if a binary measure for internet connectivity would have been used to assess levels of internet access. Beyond infrastructure, we also argue that contextual factors, such as socio-cultural and economic barriers, disproportionately prevent women (and other marginalized groups) from benefitting from a meaningful internet connection.

Keywords: gender, internet access, meaningful connectivity, ICT4D, digital gender gap

It is no longer enough to just be online. The collective experience of the COVID-19 pandemic has exposed a wide rift of digital experiences based on the kind of internet access someone has. Just as internet access has

been unequally distributed throughout the world along the lines of gender, geography, and income, so, too, have these experiences been unequally felt.

This chapter explores the depth of this inequality and proposes a policy framework—meaningful connectivity—as a means for further measurement and analysis of the digital gender gap. This framework builds from the limitations of other current measurement strategies for digital access, as discussed below. From initial research from the Alliance for Affordable Internet (A4AI), the meaningful connectivity framework suggests an important step from basic access to something more substantial where internet access translates into greater probability of doing essential activities—such as accessing healthcare, taking a class, looking up government services, or participating in the digital economy.

However, this initial research also notes a deep inequality that exists along the lines of gender and in the intersections of gender along with geography, income, education, and age. In the context of this inequality, more than just infrastructure will be important to closing the digital gender gap. However, it is clear that digital gender equality requires closing the meaningful connectivity gender gap.

Understanding Meaningful Connectivity

In addition to her full-time job as an invoicing agent with a community WiFi service provider, Heny sells mangoes. Fortunately for her, she's able to use the public WiFi network at her work to post pictures and announce the latest shipments of new produce to would-be customers. [...] Through her access to a reliable, high-capacity WiFi connection at work, Heny is able to post regularly and with higher quality photos that give her a competitive edge in selling mangoes within her community. She can make more sales and market more mangoes than others. Compared to another vendor in the same community, Rinie, who relies only on her mobile internet connection to sell mangos through e-marketing, Heny is able to sell three times as much in a day than what Rinie can in a week. In turn, Heny has built a reputation with several farmers for her reliability in getting a good price for herself and for farmers, too (Woodhouse and Chair 2020).

Our first article for FemLab compared the (pre-pandemic) experiences of Heny and Rinie as mango vendors in their town in Indonesia (Ibid.). Both sold mangoes online, but Heny was able to upload better photos and therefore sold more than Rinie by privilege of her ability to access the public WiFi

network at her place of work (Bidwell 2019). This was one of the pillars of meaningful connectivity (MC) at work.

We define meaningful connectivity as someone's access to the internet with 4G-like speeds, ownership of a smartphone, and daily access to the internet from an unlimited connection point, such as home, work, or a place of study (A4AI 2020). Through this connectivity, women entrepreneurs, like Heny, can achieve more than with just basic access.

However, meaningful connectivity lags far behind internet use—and both suffer from a deep inequality by gender. By official measures, the pandemic has accelerated internet access to new heights, with an estimated 4.9 billion using the internet (ITU 2021). At the same time, women's internet use still trails men's, with inequalities growing to roughly three men for every two women online across Africa (ITU 2021). In our initial measurements in nine countries, these numbers are more stark, where, even in the context of near gender parity in internet use, disparity emerges at the level of meaningful connectivity (Web Foundation 2020; A4AI 2022b). This framework not only aims to challenge what is "good enough" in terms of internet access, but similarly exposes deeper inequalities that have tangible impacts on women's lives.

For this reason, the Alliance for Affordable Internet (A4AI)—a multistakeholder coalition of governments, private companies, and civil society organizations around the world working to lower the cost of broadband globally—proposes that policymakers and researchers alike adopt what it refers to as meaningful connectivity. The meaningful connectivity framework enables interested stakeholders to assess whether the quality of the internet connectivity truly empowers people to access the full potential of the internet. This goes beyond the simple binary of online/offline that hides inequalities of online experiences. With this knowledge, policymakers can respond to the digital gender gap as it exists and develop finer solutions that more precisely address connectivity deficits.

Measuring Meaningful Connectivity

The most commonly used indicator for internet use today is the share of the population that has used the internet in the last three months (ITU 2021). A4AI's analysis shows the use of this indicator in isolation can be misleading (A4AI 2020).

In 2021, A4AI collected survey data capturing levels of meaningful connectivity for nine low- and middle-income countries (A4AI 2022b). On average

Graph 8.1 Internet v MC


Estimated Levels of Connectivity, by Gender
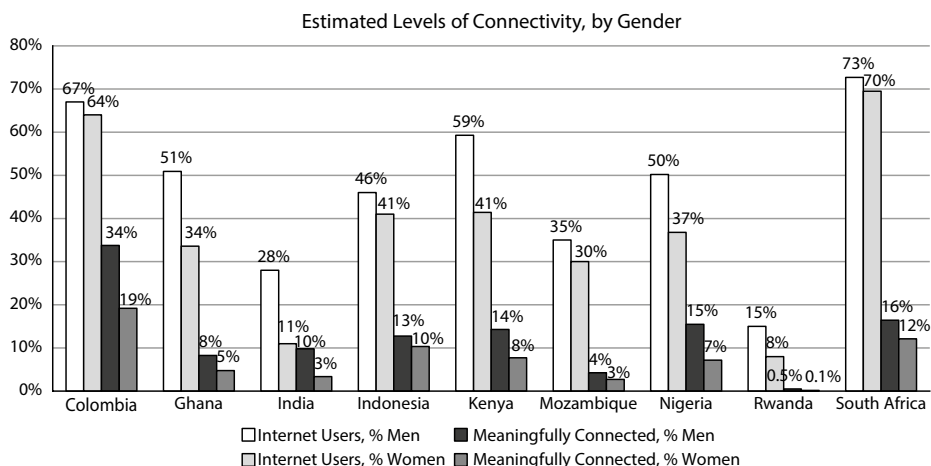
in these countries, forty-three per cent of the population was connected to the internet, but only ten per cent of the total population was meaningfully connected. In other words, fewer than one in four internet users had a meaningful connection. Two of the countries included in the analysis were Ghana and Rwanda. In Ghana, forty-two per cent of the population uses the internet, but only seven per cent are meaningfully connected. Similarly, in Rwanda, twenty-two per cent of the population is connected, but only one per cent has access to a meaningful connection. This means that fewer than five per cent of internet users in Rwanda are meaningfully connected.

Besides being misleading at the national level, measuring internet use by gender based on the relative share of male and female internet users can also be problematic (Web Foundation 2020). In certain instances, countries have managed to nearly rid themselves of the digital gender gap altogether when it is measured based on internet use. Yet, in these same countries, a large gender gap persists when the gap is measured based on meaningful connectivity. In all nine countries in our data, the gender gaps in terms of meaningful connectivity were larger than for connectivity overall. This is because among internet users, men are far more likely to have a meaningful connection.

These results highlight the power and benefit of the meaningful connectivity framework in identifying digital gender gaps where no gaps were previously thought to exist, and more accurately, assessing the size of the gaps that were already identified. In particular, the analysis carried out by A4AI to measure meaningful connectivity indicates that women in low- and middle-income countries not only faced limitations to connect, but once connected, were more

Graph 8.2 Gender Gaps

Digital Gender Gaps, in Internet Use and Meaningful Connectivity

Internet Use   Meaningful Connectivity
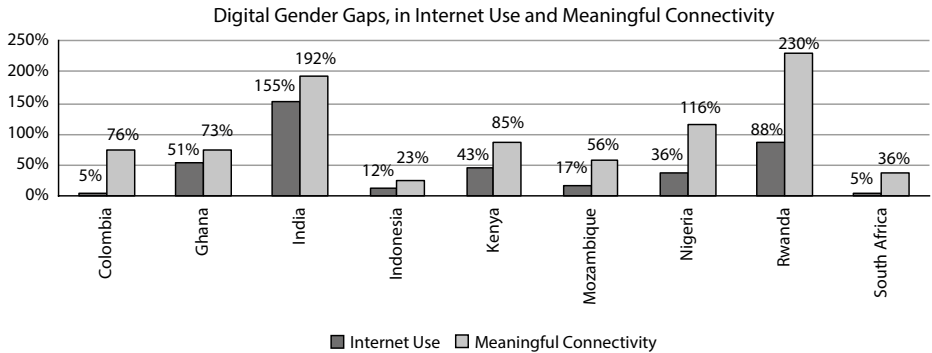
likely to only have basic access. As such, they remained unable to experience the full potential of the internet and were less likely to create content, take a class, look for a job, or sell and buy goods online (A4AI 2022b).

In Colombia, there is a digital gender gap of five per cent in internet use.[1] This means that to reach gender parity, only five per cent more women would need to connect. This is encouraging, but if policymakers would base their decisions on this figure alone, they may conclude that designing digital gender-responsive policies is no longer necessary. However, looking at the gender gap in meaningful connectivity demonstrates that tackling gender-specific barriers should remain a high priority for policymakers in internet and communication technologies (ICTs). To reach gender parity in meaningful connectivity, the share of women with meaningful connectivity would need to increase by seventy-six per cent (A4AI 2022b). The A4AI 2022 report demonstrates that despite the appearance of digital gender parity, gender-specific internet barriers continue to keep women from catching up to their male counterparts in terms of the quality of their connectivity.

The data from the surveys A4AI conducted in the nine countries in 2021 included indicators that allowed us to calculate rates of meaningful connectivity within the total population as well as by gender. The surveys were also designed to help A4AI understand how the empowering effect of the internet differs for women with meaningful connectivity as compared to those that only have a marginal connection. To do this, as part of the survey, we collected data that measured the level of confidence women had in themselves to find information, and successfully use the internet to carry out different activities.[2]

1   https://theinclusiveinternet.eiu.com/
2   Details on the survey questions and methodology are explored in A4AI (2022b).

Graph 8.3 Actions by Connectivity Profile

Women's Digital Participation, by Access Profile

Women with Meaningful Connectivity   Women with Basic Access Only   % Change
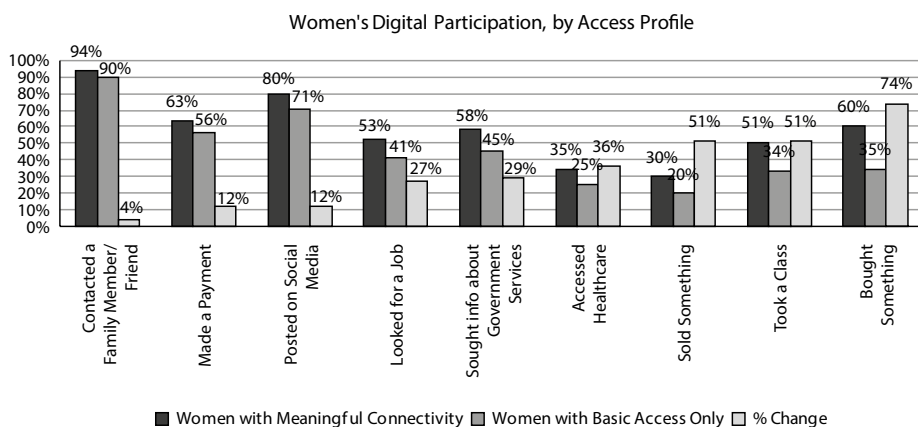
We found that while internet access of any kind supports high levels of informational literacy, women that were meaningfully connected were more likely to participate in the digital economy. Meaningfully connected women were a third more likely to perform activities online, such as buy or sell goods online or take an online course. In contrast, women with meaningful connectivity were only eleven per cent more likely to use the internet to find information online compared to women that had only basic access.

Women in our survey used meaningful connectivity to increase their participation in the digital economy and undertake personal development activities, things that their less well-connected counterparts did in fewer numbers.

In particular, some of the largest advances were made in online economic activity by women with meaningful connectivity. Across the nine countries in our study, the largest jumps between women with basic access and those with meaningful connectivity were in the numbers who had bought or sold something online in the past three months. However, we also know from other surveys that education plays an influential role in addition to the kind of internet access a woman has in determining her use of the internet (A4AI 2022a).

Exploring Meaningful Access: Beyond Infrastructure

It is not enough to merely have access to an internet-enabled device; one must be able to access it meaningfully in a context-appropriate manner. Some contextual factors that influence such meaningful connectivity are discussed here:

> The real reason we can't get [the] last several hundreds of millions of women online—it comes down to [the] fact there are people in their community who don't want them online (Sterling in Edwards 2017).

Socio-cultural norms are among the most significant, yet largely ignored determinants influencing meaningful internet connectivity.

Many villages in India have, at various points in time, banned women and girls from using mobile phones (Kovacs 2017), with the threat of fines for those caught in the act, sometimes leading to violence. In India, a young girl was burned alive by four men after she refused to stop talking on her mobile phone (Iaccino 2014), and in Pakistan, a social media celebrity was killed by her brother for posting controversial pictures of herself online.[3]

In cultures where women remain largely restricted to the domestic sphere, the internet can potentially be a liberating gateway to access communities and forbidden experiences outside the home, such as communication with men or pornographic content. But this same liberatory potential also threatens to destabilize the cultural hierarchies that exist within the home, resulting in stricter control over women's access to the internet to prevent such subversion.

During the COVID-19 pandemic, such domestic surveillance and control over women's access to the internet resulted in women being unable to report domestic violence for the fear of being caught in families that use a shared phone. As noted by Bishakha Datta, Executive Director of Point of View, in a research study on gendered surveillance during COVID-19:

> Everyone is in a small house, everyone is really hearing each other. So how would you complain? [...] Women are also feeling a little nervous about [using] helpline numbers because the minute you use that number, it's recorded on your phone. So if that is not your own phone, then it gets recorded on a shared phone. [...] People are scared of leaving a trace of the number that they are calling (Radhakrishnan 2020, 9).

A lack of spatial privacy to access the internet at home has also resulted in instances of trans-queer individuals being accidentally "outed" when their online interactions were caught by family members (Suchitra 2020).

These socio-cultural restrictions are not unique to the home. Popular initiatives such as public WiFi can fail to meaningfully connect women to the internet due to constraints women face in public spaces, such as restrictions on their mobility and public surveillance through the male gaze. Free WiFi

3   https://www.bbc.com/news/world-asia-36814258

hotspots in public spaces such as offices and open grounds therefore become inaccessible to women, as explained by a research participant in a study on public WiFi initiatives in India (Mudliar 2018):

> It is considered disreputable for women to be seen around these places and I will have to deal with a lot of people talking and asking me about my presence there. Who wants to deal with that?

Highlighting the issue of safety for women in accessing public WiFi hotspots, another research participant in Mudliar's study notes:

> When the kendra was first opened, it offered free Internet service to the village. I went there once to try it out and a man there was very rude to me. He passed snide remarks saying, 'look they have all come here for [the] Internet only because it does not cost them.' He also did not allow us to interact with the machine freely. You can only learn if you fiddle around with stuff, but he was constantly watching over us. I never went back.
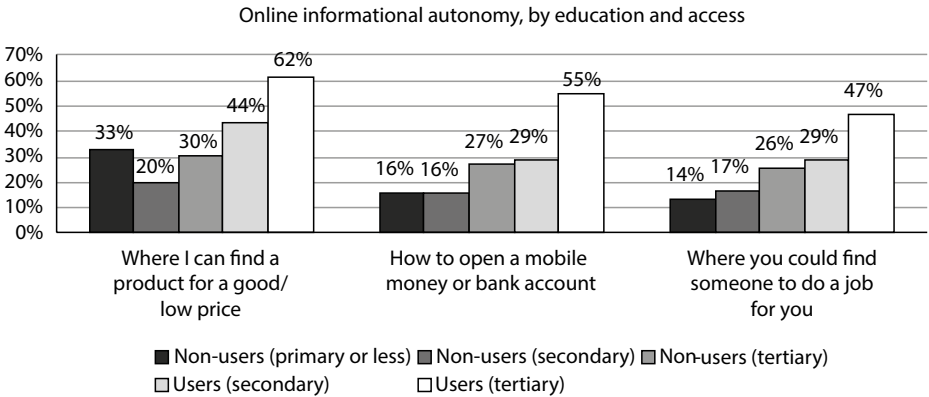
Thus, women reported only having heard about the public WiFi in the village in contrast to men who actually used the service, rendering such internet access not meaningful.

In other internet access initiatives such as community networks that are gaining popularity in many parts of the world, women are sometimes relegated to acting as "proxies" for their male family members to exercise authority in decision-making about the network. Highlighting the importance of agency, Nic Bidwell, Gender and Social Impact Facilitator for the Association for Progressive Communications Local Access Project, noted during a panel discussion at the BPF Gender session at the Internet Governance Forum, 2018 (IGF 2018, 13),

> Community Networks in which there was the most gender inequality [were] also the ones where, for political reasons, a woman had been put at the front of it, and I think that that suggests to us that this cannot be a kind of superficial [access] [...] just put somebody in charge and hope that it'll work.

In all of the above examples, predominant socio-cultural norms have a profoundly limiting impact on meaningful internet access for women and girls. Initiatives focused on providing meaningful connectivity must therefore also work towards ensuring that women and girls have the socio-cultural freedom to avail internet access.

Graph 8.4 CoE West Africa Info.

Online informational autonomy, by education and access

Non-users (primary or less) ■ Non-users (secondary) ■ Non-users (tertiary)
□ Users (secondary)   □ Users (tertiary)

Beyond socio-cultural norms lies the important issue of affordability of internet access. Affordability relates to the cost of devices and data, and the availability of disposable income and financial resources to spend on getting connected to the internet. A4AI notes that the digital divide is a poverty and gender divide, and that women are among those hardest hit by the high cost to connect. Among internet users in rural areas, Web Foundation found that women were fourteen per cent more likely than men to say the cost limited how much they could use the internet (Web Foundation 2020).

Affordability, along with pervasive socio-cultural norms, have far-reaching implications for digital skills. For instance, poorer families often prefer to invest their limited resources in educating their male children due to patriarchal attitudes which view girls' education as a burden instead of an investment (van der Vleuten 2016). Even when girls receive education, STEM fields are largely perceived to be male domains (Hammond et al. 2020). This impacts the opportunities that are available to girls in technology fields and consequently, their digital literacy. Growing up, such a lack of digital literacy also extends to women lacking the confidence and know-how to participate meaningfully online (A4AI 2022a).

Affordability and digital skills also play a crucial role in being able to protect oneself from online risks and harms, such as online violence, mis-information, and financial fraud, which is critical to ensuring a meaningful and sustainable online presence (A4AI 2022b). Internet access increased informational confidence on a variety of economic indicators for Nigerian women as part of our research into the costs of digital exclusion: meaningful connectivity, it seems, pairs with even greater confidence to take action and participate based on that information.

To be able to verify information one reads online, one must have the educational background, digital skills, and affordability of enough data to browse through other sources of information online (Web Foundation 2020). These factors are also necessary to report instances of online violence.

Consider the case of internet banking for social protection schemes, which became a prominent means of accessing money during COVID-19 lockdowns. In some historically marginalized caste and tribal communities in India, control of digital finances usually lies with a literate dominant-caste landlord (Sur 2020). Similarly, for women with disabilities, there is high dependence upon able-bodied family members to access social protection money that is transferred directly to the bank accounts of the women through mobile banking.[4] Without the autonomy to access and verify their own digital finances, marginalized communities are at risk of financial fraud.

Thus, to empower individuals and communities to make the most meaningful use of internet access, it is crucial that efforts to enhance connectivity pay close attention to contextual factors beyond internet infrastructure. As discussed here, these include socio-cultural sanction and freedom to avail internet access, including exercising one's agency over the autonomous usage of internet-enabled devices without surveillance; affordability of internet access; and relevant capacities and digital literacy skills to make the desired use of internet access, among other contextual factors.

Reaching for Universal Meaningful Connectivity

Several barriers stand in the way of gender-equitable internet access across the globe. From a top-down perspective, the traditional forms of measurement now show their age as new indicators, such as the meaningful connectivity framework, and demonstrate deeper inequalities where a more shallow assessment would find none.

The meaningful connectivity framework proposes a revised policy agenda with additional targets around connection speed, device functionality, data allowances, and frequency of use. It also correlates with greater outcomes such as accessing healthcare, taking a class online, or participating in the digital economy. This correlation holds strong across the lines of gender, but the access to such connectivity is not as equally distributed.

---

4   See "Neglected and Forgotten: Women with Disabilities during the COVID 19 Crisis in India." http://www.risingflame.org

Policy agendas must reform, and this reform cannot just be in infrastructure. In addition to the devices they carry and the quality of their connection, women face social and economic barriers that discourage their use of the internet. Policymakers, when they look to change their broadband policies, with universal, meaningful connectivity in mind, must keep these issues in consideration for a holistic response.

Bibliography

A4AI. "Meaningful Connectivity: A New Target to Raise the Bar for Internet Access." Alliance for Affordable Internet, 2020. https://a4ai.org/wp-content/uploads/2021/02/Meaningful-Connectivity_Public-.pdf.

A4AI. (2021). "The Costs of Exclusion: Economic Consequences of the Digital Gender Gap." Web Foundation, October 10, 2021. https://a4ai.org/research/costs-of-exclusion-report/.

A4AI. (2022a). "The Costs of Exclusion: West Africa Regional Report." Web Foundation, January 3, 2022. https://a4ai.org/research/costs-of-exclusion-west-africa-report/.

A4AI. (2022b). "Advancing Meaningful Connectivity: Towards Active and Participatory Digital Societies." Alliance for Affordable Internet, February 27, 2022. https://a4ai.org/research/advancing-meaningful-connectivity-towards-active-and-participatory-digital-societies/.

Bidwell, Nicola. "Profiting from Affordability and Convenience." *Affordability Report 2019*. Alliance for Affordable Internet, 2019. https://a4ai.org/profiting-from-affordability-and-convenience-2019-affordability-report-indonesia-impact-story/.

Edwards, Sophie. "Cultural Barriers Need to be Challenged to Close the Gender Digital Divide." *Devex*, May 8, 2017. https://www.devex.com/news/cultural-barriers-need-to-be-challenged-to-close-the-gender-digital-divide-90213.

Hammond, Alicia, Eliana Rubiano Matulevich, Kathleen Beegle, Sai Krishna Kumaraswamy. "The Equality Equation: Advancing the Participation of Women and Girls in STEM." World Bank, 2020. https://openknowledge.worldbank.org/handle/10986/34317.

Iaccino, Ludovica. "India: Girl Burned Alive for Refusing to Stop Using Mobile Phone." *International Business Times*, September 23, 2014. https://www.ibtimes.co.uk/india-girl-burned-alive-refusing-stop-using-mobile-phone-1466755.

Internet Governance Forum. "Impact of Supplementary Models of Connectivity in Enabling Meaningful Internet Access for Women and Gender Non-Binary Persons." Internet Governance Forum, 2018. http://65.1.20.49/ar/system/files/filedepot/62/bpf_gender_2018_output_document.pdf.

Kovacs, Anja. "'Chupke, Chupke': Going behind the Mobile Phone Bans in North India." Gendering Surveillance, 2017. https://genderingsurveillance.internet-democracy.in/phone_ban/.

Mudliar, Preeti. "'Public WiFi Is for Men and Mobile Internet Is for Women: Interrogating Politics of Space and Gender around WiFi Hotspots." *Proceedings of the ACM on Human-Computer Interaction* 2, no. CSCW, (November 2018): 1–24. https://dl.acm.org/doi/10.1145/3274395.

Radhakrishnan, Radhika. "'I Took Allah's Name and Stepped Out': Bodies, Data and Embodied Experiences of Surveillance and Control during COVID-19 in India." Data Governance Network Working Paper 12, 2020. https://datagovernance. org/report/i-took-allahs-name-and-stepped-out-bodies-data-and-embodied-experiences-of-surveillance-and-control-during-covid-19-in-india.

Suchitra. "In Urban Areas, Lockdown Leaves Members of Queer Community Stuck with Emotionally Abusive Families." *The Caravan*, May 8, 2020. https:// caravanmagazine.in/gender/urban-areas-queer-people-stuck-with-emotionally-abusive-families-coronavirus-lockdown.

Sur, Priyali. "Under India's Caste System, Dalits Are Considered Untouchable. The Coronavirus Is Intensifying That Slur." *CNN*, April 16, 2020. https://edition.cnn. com/2020/04/15/asia/india-coronavirus-lower-castes-hnk-intl/index.html.

van der Vleuten, Lotte. "Mind the Gap! The Influence of Family Systems on the Gender Education Gap in Developing Countries, 1950–2005." *Journal of Economic History of Developing Regions* 31, no. 1 (2016): 47–81. https://doi.org/10.1080/207 80389.2015.1114414.

Woodhouse, Teddy and Chenai Chair. "Beyond Access: Towards Meaningful Connectivity." *FemLab*, November 14, 2020. https://femlab.co/2020/11/14/ beyond-access-towards-meaningful-connectivity/.

World Wide Web Foundation. "Women's Rights Online: Closing the Digital Gender Gap for a More Equal World." World Wide Web Foundation, 2020. http://web-foundation.org/docs/2020/10/Womens-Rights-Online-Report-1.pdf.

About the Authors

Radhika Radhakrishnan (she/her) (radhikar@mit.edu) is a PhD student at the Massachusetts Institute of Technology (MIT). She has worked extensively with policy-oriented civil society organizations to conduct research on solving challenges faced by gender-minoritized communities with digital technologies in the Global South. Read more here: https://radhika-radhakrishnan.com/.

Ana María Rodríguez Pulgarín (ana.rodriguez@a4ai.org) is a Research Analyst at the Web Foundation and the Alliance for Affordable Internet (A4AI). As part of her work, she has conducted a number of quantitative analyses relating to internet affordability in low- and middle-income countries. She has experience working as a management consultant in Colombia, Sweden, and the UK.

Teddy Woodhouse (he/him) (teddy.woodhouse@a4ai.org) is the Senior Research Manager at the Alliance for Affordable Internet (A4AI). He coordinates A4AI's research projects, conducts original analysis and research to support the organization's mission, and uses the team's insights as evidence for policy change.