Mozilla Leadership Network

Understanding Women and Web Literacy

Research Paper

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1.0 Executive Summary

Women and girls make up half of our world's population, yet continue to face many barriers to equitable participation in society. The Internet is a powerful tool that can be used to challenge or to reproduce this reality.

When used and promoted properly, it can challenge gender imbalances and allow women to access information, services, and other opportunities. It is a means of mobilization, and boundless potential that can change the way women live their lives.

Today, however, there are still numerous obstacles that prevent women from getting online. Globally, only 37% of women are online compared to 41% of men. These numbers, however, are not representative of differences in the developing world, where there is a much wider gap between the number of women online (21%) versus men (39%). The data and research that fully captures this picture, especially in under resourced areas, is alarmingly limited. However, we can tell even by these numbers how gender inequality that is pervasive in offline settings still inhibits women from accessing the internet. Often, when women do come online, they are still restricted and subject to threats and inequities that negatively impacts their experience of the web -- and this proves true across societies.

At the heart of it, the Internet is still a place that can exacerbate inequality -- misogyny and other forms of discrimination are often embedded right into the technology. Much of this is because systems are built overwhelmingly by a select, privileged few and exclude the experiences of the marginalized. Without an inclusive web future -- one that unequivocally values women's voices and expertise -- we risk compounding gender discrimination with dire consequences for communities with less power.

Any strategy to counteract this must understand the barriers women have to overcome to access and be successful online. We must identify ways to enable positive community-based learning strategies that allow women to develop strong, self-sufficient networks so that they become fully web literate. We must enable women to play a strong, equitable role in writing and participating on the web in a way that improves agency and voice by being more than consumers of online content. Beyond cursory training and promoting women-driven content online, there is impetus to empower female leaders in technology so that the systems that are ingrained in bias can be dismantled and re envisioned. All of these efforts require institutions and organizations to take a mindful look at gender equity and inclusion that puts women's needs and realities at the center. Each of these aspects can work in tandem: increasing web literacy can help women bridge and connect with a broader network; it can improve offline inequalities through creating more user-driven design and content, and empower other women through more learning and teaching opportunities in digital skills. When we mobilize this cycle in action, women can become champions in protecting and promoting an open and accessible Web for all.

This analysis presents an overview of the landscape for Web Literacy and Digital Inclusion for women. We cover the barriers that contribute to a gender digital divide, as well as opportunities that emerge from helping women get online and outline the best practices identified in the way forward. We see the intersection of women's web literacy, women in technology, and gender equity and inclusion as reinforcing one another and needing strong multi-stakeholder commitments as well as locally-rooted strategies.

2. Introduction: Why Do Women Need to Learn the Web?

Information communication technologies (ICTs) -- and the Internet in particular -- have influence in all aspects of life: from provision of services, political participation, economic empowerment and being an informed citizen able to fully realize individual rights. It is also a space that can entrench inequalities and safety issues if the existing status quo is not challenged.

As the use of ICTs spreads around the world, we know that social and political context influences uptake and engagement in new technologies. Across communities around the globe, women face a greater burden of social and economic barriers that can inhibit access. Reaching a future where women are fully web literate, free of harassment online and leaders in the technology field will require greater understanding of the cultural and social norms that influence how women are able to access the Internet. For Mozilla, Web Literacy and Digital Inclusion are necessary to fulfill Mozilla's mission to ensure the Internet is a global public resource, open and accessible to all.

It's an exciting time for Internet usage, and with growing smartphone ownership, mobile Internet will likely be the first place that many women connect online, specifically in emerging economies. Digital technology has an impact in almost every area of life today -- from health to employment to political participation -- the potential for engagement and learning is massive. Yet, women and girls are lagging in fully activating this potential, especially in developing countries. The Sustainable Development Goal 5: Gender Equality has recognized this digital gender gap and called for the development community to "enhance the use of enabling technology, in particular, information and communications technology, to promote the empowerment of women" (5b).

Without equitable online access, women can be left out from opportunities that can improve their lives: help them increase their income, improve their well-being or build new connections. Only when we connect the most marginalized will we fully realize the possibility of a free and open Internet.

Issues of security, privacy and exposure to online harassment still affect web usage. One way to tackle these issues is through providing people of all genders with the right knowledge and understanding of threats and ways to mitigate these risks of digital technology.

We also know there are synergies between unequal social conditions and how those can play out online. These power differences manifest from who is able to access the Internet, and what is available online, to women's roles in leadership in technology, to how Violence Against Women and Girls (VAWG) takes shape online.

All of this raises the impetus for greater Web Literacy for women who can use the Internet to improve their lives and prevent infringement on their rights. It means addressing offline barriers that prevent full online participation. It means crushing false stereotypes that women are technophobic through helping them lead in creating systems and interfaces that leverage their realities and experiences, as well as direct networked learning in action. It means women taking more formidable roles in shaping ICT policy and an online world that fully reflects their reality and aspirations for an equitable world online and offline.

3. Women and the Web: Trends

The digital gender divide is large and alarming. Globally, only 37% of women are online compared to 41% of men.[1] In the developing world, 21% of women access the Internet, while 39% of men are online -- a drop of only two points for the latter.[2] In example, mobile Internet is likely how many in developing countries first come online, but patterns of usage differ for men and women. Across the developing world, the number of unique subscribers to mobile Internet ballooned to 1.8 billion in 2014, up from 728 million in 2010. While women in developing countries are now as likely as men to own or have access to a mobile phone, they are a third less likely than men of the same age, income and educational status to use it for the Internet.[3]

Offline disparities are a key impediment to if and how women access the Internet. In general: offline inequalities like access to education, earning power and household rules, as well as affordability, availability of relevant content, network infrastructure and gender-sensitive policies affect how likely women are to engage with digital and mobile technology. Social and cultural norms also affect their access and usage as do privacy and security issues. We see also how lack of awareness and opportunities to learn can be a major impediment to women coming online. The barriers to staying online present another set of challenges -- once online, women can be subject to online violence and trapped on "application islands" that prevent them from realizing the full benefit of an open web. Understanding these barriers is critical to achieving any progress in empowering women through web usage.

3. 1 Getting Women Online: Barriers to Web Access

3.1.1 Offline Inequalities

What happens offline affects women's ability to go online, and these differences are more pronounced in more unequal societies.[4] In general, women earn less than men and having a lower income means they are less able to afford mobile phones, data plans and broadband connections. There is also a direct correlation between education and women's web literacy. Women with higher education are more likely to use the Internet and in more diverse ways. In areas where even basic literacy is sparse, women's ICT usage is limited.

Gender discrimination in offline realms means that women tend to have less access to institutional knowledge than men and are more reliant on intimate networks for information.[5] This is so prevalent, that a UNESCO Report has deemed access to information the third biggest challenge after poverty and violence facing women in developing countries.

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[1] "ICT Facts and Figures." http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf (June 3, 2016).

[2] Ibid.

[3] GSMA. 2015. *Bridging the Gender Gap: Mobile Access and Usage in Low and Middle-Income Countries*. http://www.gsma.com/connectedwomen/wp-content/uploads/2015/02/GSM0001_02252015_GSMAReport_FINAL-WEB-spreads.pdf (April 27, 2016).

[4] Doria, Avri. 2015. *Women's Rights, Gender and Internet Governance: Issues Papers*. http://www.genderit.org/sites/default/upload/issue_womenrights_digital.pdf (April 27, 2016).

[5] Jellema, Anne, and Ingrid Brudvig. 2015. *Women's Rights Online: Translating Access into Empowerment – World Wide Web Foundation*. http://webfoundation.org/about/research/womens-rights-online-2015/ (April 21, 2016).

If women are not exposed to new technology, they do not build the confidence and familiarity necessary to break into a more connected world. In fact, 40% of women not online cite this as a hinderance.[6]

3.1.2 Social and cultural norms

Certain social and cultural norms can feed into web skills acquisition. As a result a culture of patriarchy that does not approve of women using unfamiliar or threatening technology can lead to hesitation in embracing ICTs. For some women, certain applications like WhatsApp "protect honor" by allowing for communication to stay within acceptable, private realms among known contacts, whereas others seem forbidden because they are too public. The occurrence of this "digital purdah" shows how people use technology to maintain social norms.[7] This prompts a type of gender segregation to occur online as some women might hesitate to move beyond accepted modes of communication.

Beyond that, some women have genuine concern for their privacy and safety online which can breed a distrust of unfamiliar technology[8], especially as online threats like cyberviolence manifest in evolving ways.

3.1.3 Lack of awareness and opportunities

While many women express a desire to learn on their own, a lack of skills and trial opportunities often prevent them from doing so. The awareness barrier creates a cycle where a lack of skills is tied to not seeing the utility of the internet and therefore not investing in learning how to use it.[9] Employees of mobile and Internet companies are not the usual go-to for learning beyond initial setup. Many women rely on their social circles, which include other women who face the same challenges. As a result, women are often using the same applications, like Facebook and WhatsApp. In addition, formal training has its own barriers such as cost, availability and accessibility, and is not always adapted to understanding local norms and culture.

3.2 Barriers for Women Online

3.2.1 Violence Against Women and Girls (VAWG)

➢ View the deep dive report on gender equity and online harassment.

As women's access online improves, often, so does the online gender violence and harassment that can surface in different ways.[10] Abuse online is not limited to women only, but overwhelmingly, cyberviolence is gendered -- about 73% of women have had

[6] GSMA. 2015. *Bridging the Gender Gap: Mobile Access and Usage in Low and Middle-Income Countries*. http://www.gsma.com/connectedwomen/wp-content/uploads/2015/02/GSM0001_02252015_GSMAReport_FINAL-WEB-spreads.pdf (April 27, 2016).

[7] Shoemaker, Emrys. 2015. "Digital Purdah': How Gender Segregation Persists over Social Media." *Dawn News*. http://www.dawn.com/news/1197345.

[8] GSMA. 2015. *Bridging the Gender Gap: Mobile Access and Usage in Low and Middle-Income Countries*. http://www.gsma.com/connectedwomen/wp-content/uploads/2015/02/GSM0001_02252015_GSMAReport_FINAL-WEB-spreads.pdf (April 27, 2016).

[9] GSMA. 2015. *Accelerating Digital Literacy : Empowering Women to Use the Mobile Internet*.

[10] Doria, Avri. 2015. *Women's Rights, Gender and Internet Governance: Issues Papers*. http://www.genderit.org/sites/default/upload/issue_womenrights_digital.pdf (April 27, 2016).

some exposure or experience of online violence.[11] The UN Women's VAWG Report estimates that 95% of aggressive behaviour, harassment, abusive language and denigrating images in online spaces are aimed at women and often come from people known to the receiver.[12] Even more vulnerable are those who are racialized and those who identify as lesbian, bisexual, queer, transgender and intersex.

Weak enforcements and anonymity favor the perpetrator until there is strong mobilization to stop this behaviour. In many ways, the fear of attack or surveillance can inhibit women from taking up ICTs in the first place. However, as more women embrace digital technology, there is also potential to tackle the problem of online harassment through first-hand solutions placing women's experiences at the center.

For women to be empowered to challenge cyberviolence, they need to have the right skillset and feel like they have agency and voice in areas of their life. Since the modes of cyberviolence are still evolving as a newer form of gender-based violence, the redress necessitates unique strategies.

Through our experiences and survey of the research, we have developed a distinct approach for remedial action on cyberviolence. The details of perspective are compiled in this report. We feel that the landscape is rapidly changing, and the main players involved have clearly defined roles to play, and Mozilla can take a substantive position on educating women on this important issue.

3.2.2 Access to Information

In a survey of nine cities in the developing world, women showed to be less likely than men to seek information online in important areas such as health, legal rights, or public transportation.[13]

There are ways to overcome this, however. Online platforms that are designed with women in mind, for example providing vital health information, or reaching into traditional economic sectors like agriculture can have a direct impact on lives. Accessing this sort of information could help women realize and demand improved rights.

Moreover, there is a strong correlation between actively seeking information and offline political activity, which suggests, "encouraging agency and voice through ICTs is more important than pushing 'improving' content to the poor."[14] Women's own participation in creating content that is locally-rooted in their own context can have empowering benefits that allow them to reflect and shape social and cultural issues, define their own aspirations and future career choices, challenge gender stereotypes, and harassment online and offline.[15] The more that female-generated content is disseminated, the more demand that it drives, making critical inroads to level the digital playing-field.

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[11] "Cyber Violence Against Women and Girls." 2015. *UN Broadband Commission for Digital Development Working Group on Broadband and Gender*.

[12] "Cyber Violence Against Women and Girls." 2015. *UN Broadband Commission for Digital Development Working Group on Broadband and Gender*.

[13] Jellema, Anne, and Ingrid Brudvig. 2015. *Women's Rights Online: Translating Access into Empowerment – World Wide Web Foundation*. http://webfoundation.org/about/research/womens-rights-online-2015/ (April 21, 2016).

[14] Gurumurthy, Anita, and Nandini Chami. 2014. IT For Change *Gender Equality in the Information Society*. http://www.genderit.org/sites/default/upload/gender_and_icts_briefing_2014.pdf (April 28, 2016).

[15] Biggs, Phillipa, and Raul Zambrano. 2013. *Doubling Digital Opportunities: Enhancing the Inclusion of Women and Girls in the Information Society*. Geneva. http://www.broadbandcommission.org/Documents/publications/bb-doubling-digital-2013.pdf (April 28, 2016).

3.2.3 Income-generating opportunities

Web literacy has a direct impact on income generating opportunities, as women can learn to further their business online or gain necessary job skills. As the nature of work becomes more hybrid with a greater reliance on digital skills, bringing women up to speed on these skills is essential for their success in the workplace and their own businesses. In general, women are a third less likely to search for work online. This varies in urban areas across the developing world, which also highlights how women engaged in informal or insecure work, like domestic work, are marginalized in different spheres of their life, and how this is influenced by offline inequalities.[16]

For example in sub-Saharan African countries, women are more likely than men to be employed in the non-agricultural informal sector. Often, their work, such as streetside vending, requires transactions, and navigating mobile money platforms like M-PESA can lead to a direct income boost.

3.2.4 Understanding Usage

Women and men do tend to use the Internet differently, and these gaps seem to become more quantifiable as the usage becomes more sophisticated. For example, women are more likely to use social networking sites than men[17], and although this can have positive outcomes for them, it can limit their usage to "application islands"[18], and prevent them from exploring the online world without restriction or creating online.

3.2.5 Research Limitations

Research understanding the full range of women's engagement with the Internet is just emerging. No globally representative data exists on women in developing countries using the Internet, although initiatives like the Partnership on Measuring ICT for Development and the Worldwide Web Foundation's Web Index are trying to remedy this.[19] There is also a notable lack in suggested solutions to many of the identified issues, especially when it comes to understanding how to address barriers that prevent women from getting online and how to accommodate them once they are there.

3.3 Women in Tech and Leadership

For all the gains made in connecting the world's most marginalized, there is still a global gap in how many women are represented once in the technology sector. Out of touch patriarchal attitudes are one thing, but actual practical steps to promote women's active engagement in Science Technology Engineering and Math (STEM) are another. Women have low representation in STEM roles around the globe.[20] The numbers are even lower for historically marginalized communities.

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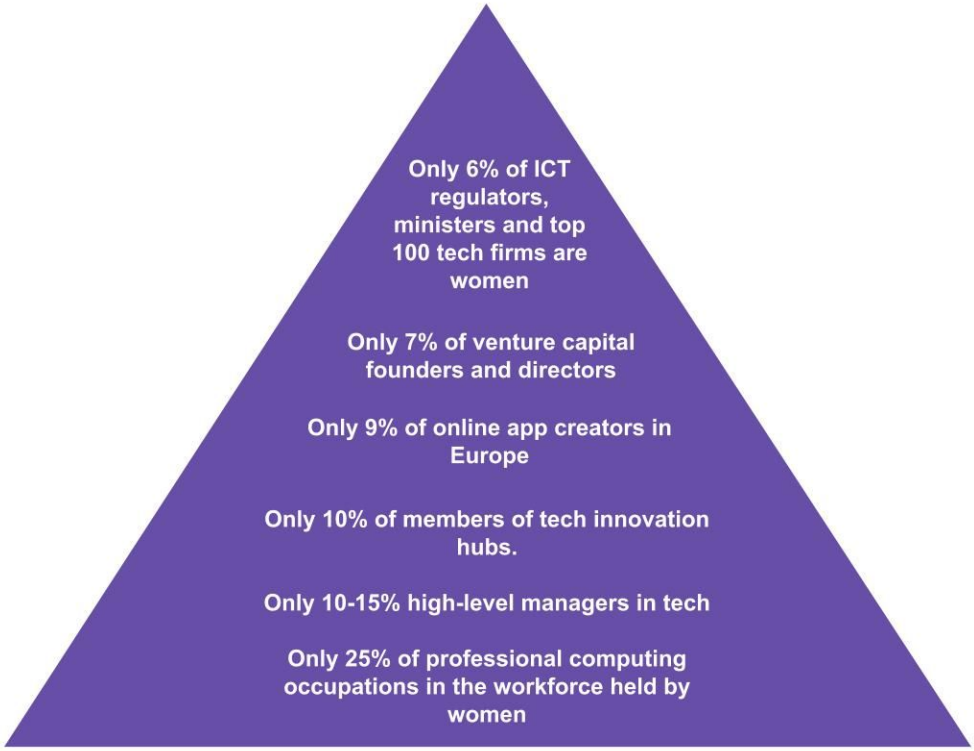
[16] Jellema, Anne, and Ingrid Brudvig. 2015. *Women's Rights Online: Translating Access into Empowerment – World Wide Web Foundation*. http://webfoundation.org/about/research/womens-rights-online-2015/ (April 21, 2016).
[17] GSMA. 2015. *Accelerating Digital Literacy : Empowering Women to Use the Mobile Internet.*
[18] GSMA. 2015. *Accelerating Digital Literacy : Empowering Women to Use the Mobile Internet*.
[19] Hafkin, Nancy. 2014. *Measuring ICT And Gender: An Assessment.* Geneva.
[20] There is a dynamic Google Spreadsheet available that charts the numbers of female software engineers at top tech firms https://docs.google.com/spreadsheets/d/1BxbEifUr1z6HwY2_IcExQwUpKPRZY3FZ4x4ZFzZU-5E/edit#gid=0.



Women in Tech[21]

3.3.1 Challenging the status quo

We need to increase both the presence and visibility of women in key roles in leadership, in civil society and the private sector. From the participation as well as greater presence of women on panels, to and decision making positions at the highest levels, we need radical inclusion.[22] Some of this begins at much earlier stages when equity principles are integrated into learning to help young girls recognize an identity as a technologist. We also need to speed the dissemination and adoption of proven strategies and curriculum that engage girls and women learners and unleash their potential, as exemplified by Harvey Mudd College which has managed to attract and successfully matriculate high numbers of female majors in Computer Science through thoughtful redesigning of an introductory computer science course.[23]

These changes to curriculum that reimagine STEM professions from a woman-centric point of view are necessary to ensure women are successful from the classroom to the boardroom.

Diversity in the workplace is about valuing non-technical skills that women can add to teams, leading to creativity and problem-solving. An inclusive future requires that pipelines and technology company culture address conscious and unconscious bias from

[21] Numbers from https://papersmart.unmeetings.org/media2/107565/special-briefing-on-women-and-ict.pdf and https://www.ncwit.org/resources/women-it-facts-infographic-2015-update

[22] Doria, Avri. 2015. *Women's Rights, Gender and Internet Governance: Issues Papers*. http://www.genderit.org/sites/default/upload/issue_womenrights_digital.pdf (April 27, 2016).

[23] "New Report on Women in STEM Features Harvey Mudd's CS Program." 2015. https://www.hmc.edu/about-hmc/2015/03/26/new-report-on-women-in-stem-features-harvey-mudds-cs-program/.

hiring practices.[24] This requires a deeper engagement with diversity hiring that is not merely tokenistic in practice. Project Diane is an initiative that charts the astonishing lack of Black women tech company founders. The campaign highlights the importance of focusing more on "outcomes" over "optics", and including targeted programs with proven metrics to achieve broader change.[25]

Moreover, bringing more women into tech encompasses a broader goal of removing biases from technology at the design stage. In example, algorithms are often reflective of those who are designing them. There is some concern that artificial intelligence might be exacerbating sexism, racism and other forms of discrimination. Inequalities can live on platforms, and if they are unquestioned -- based on who is designing them -- these can become the logic of everyday algorithms.[26] This is just one more reason to ensure women and other marginalized voices are part of the decision making and prototyping that gets this technology off the ground.

Case Study
Showing positive images of women as leaders in the tech field, especially in developing countries can offer a powerful counter-narrative to pervasive beliefs about women and technology. For example, at a Women's Rights Brainstorm and Hackathon in Zambia in March 2013, Clara Malupande, an ICT specialist who spoke about her experience in the ICT field, noted, "I love being able to challenge social norms and do things that people least expect me to be capable of."[27]

3.4 Gender Equity and Inclusion

Much of this work necessitates a hard-look at the inequalities that persist on a societal and systemic level. Achieving gender equality is one of this century's great challenges -- and must be part of the framework for an equitable Internet. Once women are online or in technology-based roles, we need greater strides to ensure equal or inclusive practices that foster positive and continued participation. When online, women need to feel connected in a safe space that allows them to share ideas or work without fear of their privacy and security. In the workplace, the lack of inclusion, support and promotions result in women in the STEM field 45% more likely than men to leave in the first year.

Gender equity needs to be enmeshed in every level of digital inclusion. Moreover, female voices need to be heard on what makes for the safest online spaces with more equitable opportunities online that allows them to communicate without fear and free of constraints. For example, World Pulse crowd-sourced a survey of women from over 90 countries to get a core list of recommendations on what women feel they need to take full ownership of their online futures. Among these, women suggest that listening is an important first step before designing any training curriculum on topics that are relevant to women's lives.[28] Importantly, they also speak to the imperative of bringing in more women into a "male-dominated tech-culture".[29]

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[24] Hafner, Katie. 2012. "'Pipeline' to Programming Jobs Has Leaks." *The New York Times*.
[25] Tiltow, John Paul. 2015. "Inside the Campaign to Disrupt Tech's Huge Diversity Problem." *Fast Company*.
[26] Crawford, Kate. 2016. "Artificial Intelligence's White Guy Problem." *The New York Times*. http://www.nytimes.com/2016/06/26/opinion/sunday/artificial-intelligences-white-guy-problem.html?_r=1.
[27] Sandler, Joanne APC. 2013. "Women's Rights, Gender and ICTs." *Global Information Society Watch 2013*. https://www.giswatch.org/en/womens-rights-gender/need-prioritise-violence-against-women-online (April 28, 2016).
[28] Pulse, World. 2015. *Women Weave the Web Recommendations Report*. https://issuu.com/worldpulse/docs/www_recommendations_package/1.
[29] Ibid.

A more gender-inclusive Internet enables greater reach into areas that impact everyone's lives online. In areas under risk of political and cultural censorship, women can play a crucial role in organizing for and advocating an open and free web.[30] With continued training and mentorship, women can also tip the scale on their representation in media -- using innovative forms of communication to express themselves online, through multiple platforms. Full access, knowledge and engagement with the web allows for a reality where women are active creators of systems and content and able to lead their own future.

4.0 Women and Web Literacy: Opportunities

4.1 Agency and Voice

For users to feel truly empowered, directing and defining the Internet for themselves is important. The web presents opportunities to include diverse individuals and groups in knowledge production at all levels. The potential for agency-creation through ICTs is immense.

As Gurumarthy and Chami put it,

> "For women's rights and gender equality, digital technologies represent many new possibilities. They have changed the way information and knowledge are produced, consumed, distributed, and shared. The Internet has been at the core of this new paradigm, putting low cost, user-controlled media possibilities in the hands of smallest women's organisations and grassroots groups, enabling them to tell their stories and present their own perspective alongside 'big' media players."[31]

The more that women use the Internet and access it in multiple ways, the more they participate in content creation that will also be appealing and accessible to other women. Potentially "bridging and linking" allows women to forge solidarity networks and online communities that can help them face real-life challenges. There is also a redemptive quality that exists within blogging communities, social media curation and media development that can allow women from marginalized communities to reclaim narratives and develop a sense of female selfhood for themselves[32].

As an example, World Pulse is a global digital network of women from 190 countries speaking out and building solutions to contemporary challenges. Women use the online platform to speak about important social issues in their communities and gain allies and support from around the world. One woman from India, Urmila Chanam, used World Pulse to mobilize global support for her campaign speaking up about stigmatization of menstruation nationwide. As a result, she received donations from around the world for her campaign. Other women have reported an increase in self-esteem and confidence directly related to being a part of World Pulse, which provides a positive space where women can participate in making change through online mobilization.

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[30] Ibid.

[31] Gurumurthy, Anita, and Nandini Chami. 2014. IT For Change *Gender Equality in the Information Society*. http://www.genderit.org/sites/default/upload/gender_and_icts_briefing_2014.pdf (April 28, 2016).

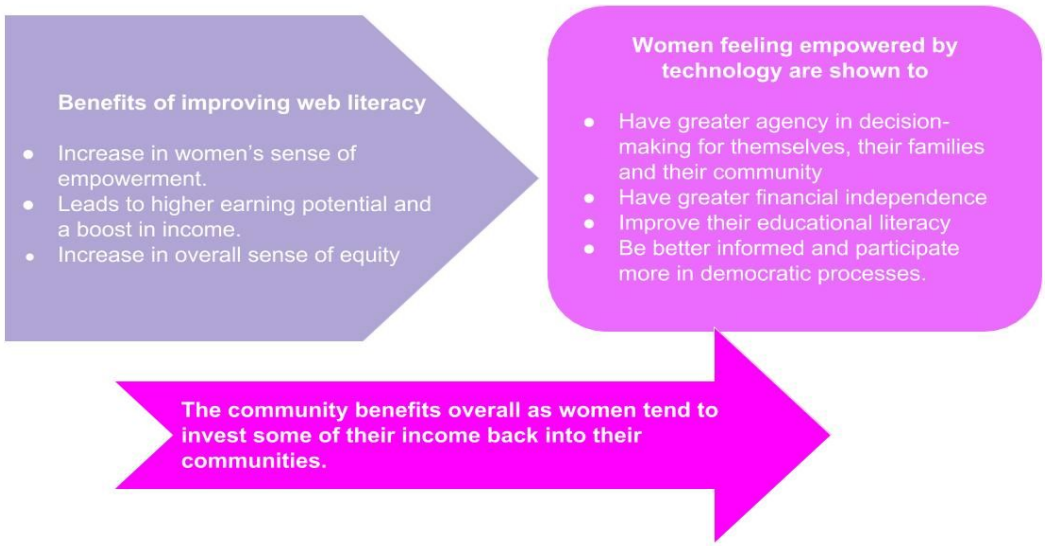
[32] Tounsel, Timeka Nicol. 2015. "The Black Woman That Media Built: Content Creation, Interpretation, and the Making of the Black Female Self."https://deepblue.lib.umich.edu/bitstream/handle/2027.42/111530/timekani_1.pdf?sequence=1&isAllowed=y

Creating apps and content online allows women to address harmful offline realities. As an example, HarassMap is crowd-mapping tool used by women in Egypt to identify "hot spots" where sexual harassment occurred in public spaces. Women have come together to use this not only as a reporting tool, but also to express their fear and anger and frustration around legal mechanisms challenging sexual harassment.

Women's own participation in creating content that is locally-rooted in their own context can have empowering benefits that allow them to reflect and shape social and cultural issues, define their own aspirations and future, challenge gender stereotypes, and harassment online and offline.[33] The more that female-generated content is disseminated, the more demand that it drives, making critical inroads to level the digital playing-field.

4.2 Economic Empowerment

Bringing 600 million more women and girls online can boost global GDP by 13-18 billion US Dollars[34], as the Internet improves efficiency and productivity in daily work and life. For women, it means wider access to markets to buy and sell goods, improved educational opportunities, wider social and career networks, new innovations, and faster access to relevant information[35]. The more that ICTs reach marginalized communities, the better these communities can learn about and respond to challenges. And as women gain greater economic power, society benefits overall as women are more likely to invest their income back into their communities.



[33] Biggs, Phillipa, and Raul Zambrano. 2013. *Doubling Digital Opportunities: Enhancing the Inclusion of Women and Girls in the Information Society*. Geneva. http://www.broadbandcommission.org/Documents/publications/bb-doubling-digital-2013.pdf (April 28, 2016).

[34] Biggs, Phillipa, and Raul Zambrano. 2013. *Doubling Digital Opportunities: Enhancing the Inclusion of Women and Girls in the Information Society*. Geneva. http://www.broadbandcommission.org/Documents/publications/bb-doubling-digital-2013.pdf (April 28, 2016).

[35] http://www.broadbandcommission.org/Documents/publications/bb-doubling-digital-2013.pdf

4.3 Stronger and Smarter Communities

Teaching the web can lead to stronger and smarter communities. Integrating basic ICT skills into primary school curricula is one step, but reaching those who are out of school through training and skills workshops can really open up digital opportunities for everyone. In resource-constrained settings, effective and interactive ways to teach digital literacy skills should be a priority, looking at how to address barriers to learning in the best ways.

Supporting community-based learning hubs provides a tangible opportunity for women's empowerment and can lead to greater community benefit overall. From Mozilla Club's recent work, we gauged how trainings helped attendees understand what it means to read, write, participate on the web and how to teach it. Trainees were able to speak to how they wanted to change their learning environments, creating safer spaces using tips they've learned, and using activities that engage their participants. Through participating in safe, local learning spaces, they are offered innovative solutions to major obstacles like safety for women online.

These sort of opportunities help strengthen communities, open up avenues to acquire new skills, and brainstorm creative ways of addressing prominent challenges in local settings. Facilitated trainings empower women, to discover and lead to independent learning opportunities and building community.

Women are often wrongfully categorized as "technophobic".[36] This case study proves how this labelling is more indicative of social patterns over that are barriers to women accessing and engaging with digital technology versus being grounded in actual truth.

Case Study: A women-only tech-hub fights stereotypes in Senegal

Senegal is the leading African nation with Internet-facilitated business contributing 3.3% of the country's GDP. However, women only hold about 35% of IT positions in the country. Although higher than the global average of 30%, Senegalese women are committed to closing the gap. A group of female computer engineers have set up the country's first tech hub run by and for women named Jiguene, which means "woman" in Wolof.

The hub runs free workshops from introductory IT skills to coding with HTML and CSS. These skills-based workshops are coupled with confidence coaching.
Jiguene's start-up success is indicative of a much larger opportunity in a landscape rife with possibilities. One 18-year old student at the hub told the BBC, "before, I didn't have the opportunity to talk with girls and women involved in this field. Even though I use technology and a computer, I thought it was for men."[37]

[36] Foundation, Alliance for Women in Media. *Special Report on Digital Literacy for Women Girls.pdf*. https://www.itu.int/en/ITU-D/Digital-Inclusion/Women-and-Girls/Documents/ReportsModules/Special report on digital literacy for Women Girls.pdf (April 28, 2016).

[37] Kottoor, Naveena. 2014. "The Senegal Tech Hub Run by for Women." *BBC*. http://www.bbc.com/news/business-28363783.

5.0 Best Practices and Steps Forward for Women in Web Literacy

5.1 Initiatives supporting better data and research for gender inclusion and equity

Some major players in gender and ICT work are starting to address the limitations in data research. The Task Group on Gender of the Partnership on Measuring ICT for Development[38] aims to improve the availability of sex-disaggregated data specifically for developing countries by identifying core gender indicators. These can in turn help how solutions are proposed and designed to best support women online and enable more positive experiences and interactions with the web.

Outside of this partnership, there are further initiatives to improve gender-related ICT measurement methods.

Some of these include:

- The Association for Progressive Communication Gender Evaluation Methodology for Internet and ICTs
- Regentic
- Intel's Women and the Web
- GSMA/Blair Foundation's study on mobile phones and women's empowerment.
- The World Wide Web Foundation created a Web Index in 2014 that aims to be "the world's first measure of the World Wide Web's contribution to social, economic, and political progress in countries across the world[39]." This index allows for gender disaggregation of global ICT data in real-time.

5.2 Initiatives supporting women's web literacy

There are several initiatives that support women and web literacy, either through campaigns, collective calls to action, policy recommendations or practical workshop and skills training.

Here's a snapshot of some prominent initiative supporting web literacy, women in technology and gender equity and inclusion around the world.

5.2.1 Women and Web Literacy

Women and Web Alliance is a public-private partnership among USAID, NetHope, Intel Corporation, World Pulse, World Vision, UN Women, and Women in Technology in Nigeria. The Alliance will create a 'movement' that addresses the Internet gender gap by bringing more than 600,000 young women online in Nigeria and Kenya in the next 3 years.

[38] This taskforce includes partners: the International Telecommunications Unit (ITU), the UNESCO institute for statistics (UIS), UNCTAD, the International Labour Organization (ILO), The UN ESCAP, ESCWA, Eurostat, the Organisation for Economic Co-operation and Development, LIRNEAsia, Research ICT Africa, Women in Global Society and Technology (WISAT) and the World Wide Web Foundation.

[39] Foundation, Worldwide Web. 2014. "Data | The Web Index." *The Web Index*. http://thewebindex.org/data/?indicator=S13&country=ALL (May 16, 2016).

Digital Empowerment Foundation aims to connect unreached and underserved communities of India in an effort to bring them out of digital darkness and empower them with information access through last mile connectivity, digital literacy and digital interventions.

GSMA Connected Women works with mobile operators and their partners to address the barriers to women accessing and using mobile Internet and mobile money services.

Intel's She Will Connect program helps young women acquire or improve digital literacy skills and expand their understanding and use of technology so that they can connect to health, government, and educational information, as well as new economic and entrepreneurship opportunities.

MediaSmarts is a Canadian not-for-profit charitable organization for digital and media literacy. Their vision is that children and youth have the critical thinking skills to engage with media as active and informed digital citizens.

Telecentre Women, seeks to empower women and girls with multiple ICT tools, content, linkages and opportunities, that contribute to break cycles of gender exclusion and inequalities, particularly among underserved communities, minorities and in remote regions of the world. Telecentre Women is building a new global network of knowledge and collaboration exchange among women from around the world.

5.2.2 At the intersection of Women, Web Literacy and Tech

Girls in ICT The Girls in ICT Portal is a tool for girls and young women to get an insight into the ICT sector as well as for partners to understand the importance of the International Girls in ICT Day, developed by the ITU.

Girls Teaching Girls to Code is a program where Stanford women in Computer Science teach Bay Area high school *girls* to *code*.

Code.org is a non-profit dedicated to expanding access to computer science, with a mandate for increasing participation by women and underrepresented students of color, pushing for more computer science curriculu in schools.

Mother Coders is a nonprofit organization whose mission is to help women with kids on-ramp to careers in tech so they can thrive in a digital economy.

Girls Write Now A community of women writers from ages 13 to 83. Together, we write the future, one girl at a time.

5.2.3 Women in Tech

TechWomen empowers, connects, and supports the next generation of women leaders in science, technology, engineering, and mathematics (STEM) from Africa, Central Asia, and the Middle East by providing them the access and opportunity needed to advance their careers, pursue their dreams, and inspire women and girls in their communities.

Sadie Nash Leadership Project is an inspiring learning experience and powerful community of young female leaders in NYC.

Intel Girls and Women in STEM Intel and the Intel Foundation support a range of programs, competitions, and resources that seek to inspire and equip more girls and women to create and build the technology of the future.

National Center for Women and IT is a non-profit community of more than 700 universities, companies, non-profits, and government organizations nationwide working to increase women's participation in computing and technology. NCWIT equips change leaders with resources for taking action in recruiting, retaining, and advancing women from K–12 and higher education through industry and entrepreneurial careers.

Women in Technology Women in Technology (WIT) aims to advance women in technology -- from the classroom to the boardroom. WIT conducts a variety of leadership development, technology education, networking and mentoring opportunities for women at all levels of their careers. WIT has nearly 1000 members in the Washington, D.C./Maryland/Virginia metro region.

Women in Tech in Africa is a group working to form an African alliance of female technologists and organizes events that nurtures female leaders in technology across Africa.

Broadband Commission for Digital Development ITU and UNESCO aim to boost the importance of broadband on the international policy agenda, and expanding broadband access in every country as key to accelerating progress towards national and international development targets.

5.2.4 Gender Equity and Inclusion

Association of Progressive Communications mission is to empower and support organisations, social movements and individuals in and through the use of information and communication technologies (ICTs) to build strategic communities and initiatives for the purpose of making meaningful contributions to equitable human development, social justice, participatory political processes and environmental sustainability.

IT For Change An India-based NGO working on information society theory and practice from the standpoint of equity, social justice and gender equality.

UNESCO Global Alliance on Women and the Media is a global movement to promote gender equality in and through media.

The Internet Governance Forum is a multistakeholder platform that enables the discussion of public policy issues pertaining to the Internet.

World Pulse is an online community of women collaborators from over 190 countries speaking out and building solutions to today's biggest challenges. World Pulse uses digital means to unite and amplify the voices of women from around the world in an online platform.

Worldwide Web Foundation is a Women's Rights Online initiative that aims to drive women's empowerment through the Web. The program uses research, policy advocacy and storytelling to achieve this goal.

5.3 Collectively, many of these initiatives have proposed the following calls for action:

- Need more than "blanket initiatives" and a "smattering of training programs" to connect everyone.
- Communicate the full scale utility of the Internet and create motivations for them to invest time and effort in learning mobile Internet on their own.
    - Confront the barriers that younger women face, who often like to learn on their own
- Get beyond basic training for women and make it more relevant to job-searching and job-related skills.
- Have gender-appropriate content as integral to ICT training.
- Access issues are rooted in offline social norms, need to address these to create more comprehensive solutions.
- Women may not be willing to learn from male-mobile and Internet service providers.
- Create more effective peer-learning networks.
- Look at ways of encouraging female entrepreneurship.
- Focus on encouraging female-directed content that is appropriate to the local context and encourages agency and voice.
- Leverage social circles as a learning channel.
- Expand learning through community resource persons, emphasise training in schools.
- Understand usage and full scale of digital skills that women acquire, how this may vary specific to region and locale, as well as in relation to education, income, etc.
- Establish time-bound targets for equity in Internet access, use and skills, by gender and income level.
- Teach digital skills from primary school onwards.
- Smash the affordability barrier.
- Practice woman-centered design by responding to their needs.
- Make women's civic and political engagement an explicit goal.
- Combat harassment of women online.
- Find offline solutions in addition to online.

6.0 Conclusion

While the digital gender divide is prominent, there is hope for a more inclusive future. As more people come online, we can make inroads to reach the most marginalized and vulnerable in their search for better futures. While digital empowerment is only one way of bettering social and economic conditions, it is a promising one.

We are just beginning to understand the gap that prevents women from coming and, importantly, staying online. This gap is largely rooted in existing social inequalities that require a comprehensive and well-thought out approach. What's missing is the recognition of large-scale opportunities of a future that is truly digitally inclusive, where women are leaders and decisionmakers, driving content creation and design in multiple platforms. This is when we will shift to a default where women play a strong and equitable role in reading, writing and participating on the web -- ultimately leading the next wave of openness, innovation and opportunity online.

Addressing each of these themes allows women to take control of their lives online. Web literacy can help women bridge and combat privacy issues; it can improve offline inequalities through creating more user-driven design and content, and empower other women through more learning and teaching opportunities in digital skills, creating a new wave of leaders.

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