

Digital Divides

Are offline barriers simply repeated online? Do we simply reconstruct the physical spaces with the digital?

**Technology is not a benign or neutral instrument
(Digital Futures Report, 2022)**

The digital gender divide refers to the unequal treatment of women in digital spaces and the barriers women face to digital access, affordability, education and technical literacy.

The digital gender divide can firstly be articulated in terms of unequal access to technology – worldwide approximately 327 million fewer women than men have access to a smartphone and can access mobile internet. Women on average are 26% less likely than men to have a smartphone, though these statistics are dependent on location (United Nations, 2018)

However, the digital divide extends from access to the use of tech in terms of digital safety and the unequal treatment of women online. This unequal treatment includes contributory intersecting identities, including race, sexuality, disability and social and economic status.

As observed in the 2013 Oxford Research Report, the internet falls into a variety of distinct cultures: none of which will experience the internet in the same way, or respond to the associated potential digital benefits and harms alike. (OxIS 2019: Dealing with Dueling Perspectives in Britain)

This exists due to the gender bias coded in the technology sector, where those who produce the technology reproduce their biases through algorithmic bias, data bias, and other gender-blind technology (Stephanie Mikkelson, 2021).

The division exists in the digital industry itself. The gender pay gap is the mean difference between men's and women's pay. This is not necessarily a result of illegally paying a woman less than a man but takes into account the economic barriers and career ladder which prevent a woman from earning as much as a man.

For example, the barrier of unequal access to technology manifests in unequal employment where if 90% of jobs worldwide have a digital component, then digital illiteracy presents a barrier. (Plan international, 2022)

Within the UK, out of the three million people employed in the UK tech industry (9% of the UK workforce) only 26% of the tech workforce are women. (UKTech news)

Furthermore, this is compounded by intersecting identities which attach power and oppression: a 2021 report found women of colour to be less confident than white women about their promotion prospects—and that gap has increased by 3X in 2022. 37% of women of colour in tech identify racial bias as a barrier to promotion. (TrustRadius, 2021)

Cyberfeminism

Cyberfeminism is a concept first coined by Sadie Plant in 1994, in opposition to the perspective of cyberspace which was inherently masculine, created by and for men. (McAdam et al, 2020). It describes a stand of feminism which aims to analyse and critique cyberspace and new-media technologies, aiming to challenge these systems. (Consalvo, 2012)

Critically approaching online spaces through a cyberfeminist lens helps us make sense of these spaces, and the interactions which occur there.

What constitutes cyberfeminism has been subject to much debate and attempts to refuse consistent definition (Annie Goh et al, 2021). It is a growing area of thought and study which is not a unified set of ideas, but relates to empowerment through knowledge of technology and its systems. (Mia Consalvo, 2012)

Cyberfeminism has been important in influencing the ways in which we perceive bodies in a digital space and understand the construction of this space.

Race and gender matter online as much as in the offline environment: it is not a disembodied place where these identities attached to an individual can be left behind. (McAdam et al. 2020).

Cyberfeminism calls for recognition of contributory and indirect factors: intersectional feminism is an important tool which can be applied through a cyberfeminist lens. Rebecca Richards encourages intentionally considering how we produce these structures very early on:

‘For example, students can connect their academic knowledge to a lived experience, service learning can also reaffirm a benevolent mindset in which the student acts as savior (imparting knowledge or lending free labor) to the members of the community who are coded as insufficient or needing help. Instead of breaking down hierarchies of power, community-based learning can reinforce hegemonic power relations.’

(Richards, 2011)

The digital sphere offers hope for activism in allowing movements across social media to unionise in a global format we have never seen before.

Digital activism

For example, the black squares movement in support of the Black Lives Matter movement is a complex example of the ways protests may occur in virtual spaces.

It was also unlike prior movements seen in support of a cause, as the unique circumstances of the pandemic shaped a digital response to the very physical murder of George Floyd. Since many people were too vulnerable to join the physical protest, users took to social media platforms in a 'black out' of social media, posting black squares to block the regular feed and draw attention to the racist hate crime that had occurred. Over 28 million users posted a black square in solidarity. (Forbes, 2020)

The movement was later criticised when many removed their black square without any permanent contribution to anti-racist work. There was a real issue with that the posts also blocked the distribution of critical information around the physical BLM protests and more sustainable spread of anti-racist resources. (Brooke Marine, 2020) However, it unquestionably forced many who weren't paying attention to do so and exemplifies the power that digital spaces have to mobilise users.

The digital sphere offers hope for activism in allowing movements across social media to unionise in a global format we have never seen before.

Careers in tech

Opportunities and barriers: what are they, why are they different, and why do they matter?

Socio-cultural perceptions and bias prevent women from obtaining senior roles in digital companies to the same extent as men: for example, a 2018 report issued by the Australian Government found that globally women are 20% less likely to hold a senior leadership position than men. (OECD, 2018)

A 2020 report by the World Economic Forum found that women account for only 26% of the data and AI positions in the workforce across an international sample which included European, South American, Asian and American populations. (WEF, 2020)

Furthermore, the COVID-19 pandemic is reported to have exacerbated the underlying issues women experience in the workplace, such as redundancies, penalisation for domestic tasks and burnout culture. (Claudia Harris, UKTech news, 2022)

Statistics from Girls Who Code found that 50% of young women who enter tech leave their positions by 35, citing “non-inclusive company culture” in their reasons for leaving. (Claudia Harris, UKTech news, 2022)

Non-inclusive company culture contributes to the pay gap through driving women out of the tech industry. 66% of women report having the greatest domestic responsibilities, with 80% of women reporting their workload has increased since the beginning of the pandemic in 2020 (WIS, Whitespace, 2022). Furthermore, if a company with a neutral gender balance and no bias in hiring then introduces a poor maternity leave policy, a woman may leave to have family. Kieran Snyder interviewed 716 women who had worked at 654 companies in 43 states across the USA. (Kimberly Weisul, 2014) On average, they had worked for seven years in their respective companies. She found that:

- 484 women cited motherhood as reason for leaving**
- 192 women cited discomfort with the work environment as reason for leaving**
- 97% of the interviewees stated they were never coming back to tech**

Anecdotally, many told Snyder that they would have remained, but their company had no maternity policy: companies with less than 50 employees aren't covered by the Family and Medical Leave Act.

This is an example specific to the US, but it illustrates a culture within the industry that stretches beyond the US.

Careers in tech

Studies show that by increasing the number of women working in IT, the industry could bring an increased £2.6 billion a year to the UK's economy.

(Claudia Harris, UKTech news, 2022)

Inclusive company culture is not only beneficial for the well-being of the individual and companies but also a positive financial investment.

Diversity is a business advantage.

Digital safety in tech

Equality. Diversity and Inclusion issues in tech present not only a bias in technology but also a safety issue

Black and Hispanic people are more likely to experience online abuse; in a 2020 Pew Research survey, they found that in the USA, 54 % Black and 47% Hispanic individuals were more likely to report online harassment than 17% of their white counterparts. (Vogels, Pew Research, 2021)

Disabled individuals and those in underrepresented ethnic groups are more likely to experience online harassment than other individuals:

'It is apparent that many disabled people are digitally excluded and that levels of internet use are lower among disabled people than non-disabled people.

According to the Office for National Statistics, 49% of disabled people had used social media in the three months prior to August 2017 compared with 71% of people without disabilities.' (20, Parliament Publications)

'The Government, in its Hate Crime Action Plan 2016 to 2020,19 and the police, in evidence to us, accepted that disability hate crimes are widely under-reported. As Detective Inspector John Donovan, Online Hate Crime Hub, Metropolitan Police Service, told us:

'Hate crime is badly reported, and disability hate crime is very badly reported. [...] Only 4% of our work is identifiably disability hate crime; 49% is racial. Disability hate crime is heavily under-reported, and that is a disappointment to me. When we started this a year or 18 months ago, I thought disability hate crime on the internet would be easier to identify, because you would have to be overt. It has not quite panned out that way.'20" (30, Parliament Publications)

What this highlights is the compounded intersection of hate crimes against marginalised groups online and the need for greater digital safety for these vulnerable groups.

Has the pandemic led to increased online use?

From the period of early April 2020, internet use had increased between 50-70% (UN statistics)

In the week of March 23rd, traffic to the Government helpline for image abuse nearly doubled. (UN statistics)

These digital spaces carry forward the capacity to increase gender-based violence, which has been exacerbated by this increased internet use.

However, there continues to be a lack of comprehensive global data collected around these issues (that is in itself an issue?) But these datasets that we do hold suggest an increased level of gender-based violence when women and girls do have access.

(UN statistics)

-Safety-related issues reportedly feed into opposition for women and girls to be online: in both China and Mexico, harassment is among the highest-rated barriers to owning and using a mobile phone (OECD, 2015) where exposure to cyberbullying and online harassment contributes to digital illiteracy. This may contribute to further barriers in career path.

In the EU, 1 in 10 women report having experienced cyber-harassment since the age of 15.

Female scholars are more likely to get harassed online, including directly attacking the content of their research; in a study from four Canadian Universities, female faculty members reported a higher level of online harassment. (Faucher et al, 2014, Veletsianos et al, 2018)

This is covered under indirect harm, which amplifies gender inequalities and discrimination against women and girls. (Stephanie Mikkelsen, 2021).

This indirect harm includes:

-Algorithmic bias

-Data bias

Machine Learning is a type of AI technology that is dependent on datasets for training. A lack of data around a minority group contributes to skewed datasets, causing them to be incomplete or skewed (Sue Sentance, 2022)

-Data security

-Gender blindtech

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Algorithmic bias demonstrates how the algorithms we code as not neutral:

- In Coded Bias, Joy Buolamwini demonstrates her discovery where the racial bias in supposedly neutral facial recognition technology led to better response to white and lighter-skinned faces. Facial recognition, like many data driven AI systems, is grounded in pattern recognition: but if the dataset is not diverse, the model will not be able to recognise unfamiliar patterns. (Buolamwini, 2019)

- In Algorithms of Oppression, Safiya Umoja Noble observed how after googling 'black girls' in 2011, the first hit suggested fetishizing pornography (Noble, 2018). Google search is perceived to be a public, neutral resource, but when information flow and bias impact the presentation of this information and suggest results, how neutral are they?

A 2005 Pew Research Report found that that 62% of internet users were unaware of the difference between paid and unpaid results, while a 2018 study found the number to be at 60%. (Deborah Fallows, 2005. Varn, 2018)

The free flow of information has been internationally recognised, with 39 governments and the European Community policies that 'maintain an open environment that supports the free flow of information, research, innovation, entrepreneurship and business transformation.' (Commerce Department, 2010) Yet, China's software based Golden Shield selectively blocks IP addresses, internet addresses and certain words, with Russian publicly attempting to follow this example through DNS (domain name system). (Adee, 2019)

Shadowbanning

Shadowbanning is the quiet suppression or silencing of individuals or groups on a platform. – restricts user visibility.

Instagram have specified that they use machine learning to 'determine if the actual media posted is eligible to be recommended to our community' (Will Ruben, Instagram Product Lead) Borderline Content exists in a grey area which does not violate Community Guidelines, and there's no object definition for what it can completely include.

Even in the discussion of shadow banning, there are certain individuals who tend to be given the spotlight or dominate media discussion.

It has received attention from right-wing politicians who claim to have been shadowbanned on Twitter when users no longer interact with their content, but most recent events have seen the suspected shadowbanning of the Black Lives Matter Protests, when Tik-Tok users noticed how infrequently the international protests were appearing on their 'For You' pages. Algorithms may contribute to the further marginalisation of vulnerable communities in digital spaces.

An algorithm is a coded set of instructions which acts on content when it encounters a trigger, and is directed to prioritise the user's interest. (Forbes 2021)

However, through prioritising engagement patterns, algorithms may drive users towards 'preferred' content: data is learned by AI, which amalgamates the data the algorithms collect to create new algorithms of learned input and outputs. (Forbes 2021)

Shadowbanning undermines diverse potential by suppressing content in a user's feed, reinforcing the triggers that caused inequities initially. (Forbes 2021)

Tiktok is a major platform on which Black content creators have to consistently fight for visibility and credit, with many white content creators assuming their dances without giving credit to the creators. (Coger, Refinery29, 2022)

However, over the Black Lives Matter protests of 2020, creators flagging terms like BLM were silenced: with over 4.6 billion posts, users noticed that the widespread global physical and digital protests were absent from their timelines (Santiago Cortés, Refinery29, 2022).

Furthermore, they noticed when typing phrases like 'black success' in, the app flagged their content as "inappropriate" (Ghaffary, 2021). The app apologised, but like the creators questioned: if the problem is the algorithm, and the marketplace has been available since 2020, and there are racial considerations then why hadn't the conversation been had with the team? It appears to present the continuing problem of a lack of diversity in the board, where these considerations have not impacted the people producing the algorithms.

A 2019 study showed AI models detecting hate speech as 1.5x more likely to flag tweets written by African Americans in comparison to other tweets (Ghaffary, 2021)

Algorithms can promote and further echo chambers.

'And how does the internet both obscure and exacerbate the racial and gender dynamics that already animate so much of our social interactions?' (Jess Kung, CodeSwitch)

ADMS and the digital welfare state: automated decision-making systems have caused concern for the delegation of decision making to a data-driven, algorithmically controlled system in European Public Administration systems (Digital Future Society, Gender Equality 2020 Report)

The algorithm promotion of sleuthing drives further marginalisation. This can occur in mainstream feminist activism, which is supposed to be an inclusive space. For example, the 2021 protests in support of Sara Everard in the UK which raised awareness around the violence against women.

This effect is positive in raising awareness and contributing to the search for missing persons, but it also drives the 'Missing White Woman syndrome'. (Kung, 2022) This ultimately furthers the silence around missing Black and Indigenous women of colour, and trans and disabled women when they are targeted because this narrative dominates across media. That is not to say that individual missing women are more or less important, but that this media focus which may be exacerbated by algorithms contributes to a growing silence around marginalised women who are more vulnerable.

It asks the question of who becomes viral, and why? Who is defended? What are the lasting repercussions?

These aspects of identity feed into the algorithms.

What can we do to change this?

Diversifying tech needs to be a cultural and mental shift, with systemic and sustainable changes implemented (Trueman, 2021)

To help/drive women forward in tech, we must first address the collection of and up-to-date use of gender data. This also goes for those in under-researched areas: the majority of data and samples used in this represent cis-women from European countries and often white, straight European cis-women. (Sue Sentance, 2022)

A key solution to address these divides is to consciously employ and support women, from all backgrounds: TrustRadius 2021 report found that 78% of women say companies should promote more women into leadership positions. ((TrustRadius 2021 report)

The Oxford 2013 Survey found that there has been progress in narrowing digital divides with a rise in Internet access for lower income groups, disabled individuals, those without formal qualifications and those who are retired. (Oxis-2013).

Solutions include:

- **72% women felt providing mentorship opportunities would help**
- **64% felt offering flexible scheduling would help**
- **In terms of what we can do to address some of these aspects, the solutions may be found in our evolved approach to working: becoming more flexible and offering hybrid models is one solution. However, as the Digital Futures institute observe, making these roles remote is unlikely to benefit the women's career progression or emancipate them from their role as carers. (Gender Equality and Welfare).**
- **However, the TrustRadius 2021 report found remote work to be divisive: 41% of women found remote work to be positive, 42% found remote work to be negative. (TrustRadius 2021 report)**
- **57% said conducting unconscious bias training would help**
- **55% said implementing equal maternity and paternity leave would help**

Provide opportunities for employee feedback may also provide a solution:

The TrustRadius 2021 report found that 72% of women said they felt 'bro culture' was pervasive in their workplace, while only 41% of men felt the same. By incorporating feedback and providing anonymous opportunities to do so, companies can strategize building a better and more inclusive workplace for women and their intersecting identities.

But it should be acknowledged that where companies only employ one minority individual, it wouldn't necessarily be safe for them to provide anonymous feedback as it would be evident that they are the only individual in the department who would experience these discriminations. (TrustRadius 2021 report)

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