

THE (NON-)INTERSECTIONAL COMMUNICATION OF TECHNOLOGICAL ACTIVIST INSTITUTIONS PROMOTING GENDER EQUALITY IN INFORMATION AND COMMUNICATION TECHNOLOGIES IN PORTUGAL

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ABSTRACT

The digital gender gap is deeply rooted in historical and social inequalities. In Portugal, public policies have aimed to reduce this disparity by focusing on education and employment. However, these policies often fail to address the social complexity of the issue, such as limited access to quality technological devices and low technological literacy among women from diverse geographical and socio-economic backgrounds. This study analyses the communication strategies of technological activist institutions that promote gender equality in information and communication technologies in Portugal, adopting an intersectional perspective. Focusing on the Instagram posts of four institutions — Portuguese Women in Tech, As Raparigas do Código, Geek Girls Portugal, and Women in Tech Portugal — between January and June 2023, the analysis reveals that, despite notable efforts by these organisations, significant challenges remain in achieving intersectional communication. The study concludes that institutions should reassess and broaden their communication strategies to incorporate an intersectional approach, ensuring continuous and diverse representation. Decentralising activities and promoting online events are identified as critical strategies for increasing participation and reducing inequalities.

KEYWORDS

intersectional communication, gender, information and communication
technologies, technological activism, digital inclusion

A COMUNICAÇÃO (NÃO) INTERSECCIONAL DE INSTITUIÇÕES DE ATIVISMO TECNOLÓGICO QUE ATUAM NA PROMOÇÃO DA IGUALDADE DE GÊNERO NAS TECNOLOGIAS DA INFORMAÇÃO E DA COMUNICAÇÃO EM PORTUGAL

RESUMO

A brecha digital de gênero tem raízes profundas em desigualdades históricas e sociais. Em Portugal, políticas públicas têm tentado reduzir essa disparidade, focando-se na educação e

emprego, mas, frequentemente, falham ao não considerar a complexidade social do problema, como a falta de acesso a aparatos tecnológicos de qualidade e a baixa literacia tecnológica entre mulheres de diferentes contextos geográficos e socioeconômicos. Este trabalho busca analisar a comunicação das instituições de ativismo tecnológico, que atuam na promoção da igualdade de gênero nas tecnologias da informação e da comunicação em Portugal, sob uma perspectiva interseccional. Focando nas publicações do Instagram de quatro instituições (Portuguese Women in Tech, As Raparigas do Código, Geek Girls Portugal e Women in Tech Portugal), entre janeiro e junho de 2023, a análise revela que, embora haja esforços perceptíveis por parte das instituições de ativismo tecnológico em Portugal, ainda existem desafios consideráveis na promoção de uma comunicação interseccional. Conclui-se que as instituições devem revisar e expandir suas estratégias de comunicação, para incorporar uma abordagem interseccional, garantindo representação contínua e diversa. Descentralizar atividades e promover eventos online são estratégias importantes para ampliar a participação e reduzir desigualdades.

PALAVRAS-CHAVE

comunicação interseccional, gênero, tecnologias da informação e da comunicação, ativismo tecnológico, inclusão digital

1. INTRODUCTION

Information and communication technologies (ICTs) play a central role in contemporary society, influencing various aspects of life, including the economy, culture, education, and social interactions. The European Declaration on Digital Rights and Principles emphasises that technologies have the potential to transform lives, creating opportunities to enhance socialisation and improve access to health, culture, and education (European Commission, 2022). However, while ICTs offer significant benefits to those who master them, they also expose and, in some cases, exacerbate existing societal inequalities by creating digital divides (Ragnedda, 2017). These digital divides can be categorised into dimensions of access, use, and appropriation, intersecting with socio-economic factors such as education, gender, and class.

This paper focuses on the concept of the “digital gender gap”, which can be defined as “the disparity between men and women regarding technologies, distinguishing between mere access and the actual use and appropriation of these resources” (Pérez-Escoda et al., 2021, p. 506). The impact of the digital gender gap is evident not only in the economy and unequal access to ICTs but also in the limited representation of women as producers of these technologies. In Portugal, this issue is further exacerbated by historical and cultural factors, such as gender stereotypes that have been perpetuated for decades, relegating women to restricted social roles centred around caregiving and the household (Fonseca et al., 2023).

Given the importance of ICTs for socio-economic development, technological activist institutions working to promote gender equality in the sector in Portugal have developed alternative strategies to those proposed by the Portuguese Government, which focus on technical qualifications and initiatives aimed at increasing skilled labour while overlooking existing social markers (Fonseca et al., 2023). Institutions such as Portuguese Women in

Tech, As Raparigas do Código, Geek Girls Portugal, and Women in Tech Portugal have emerged as digital platforms dedicated to promoting gender equality in ICT through empowerment, the development of digital skills in accessible and safe spaces, and the deconstruction of gender stereotypes at various stages of life.

Since communication is a powerful tool that shapes and reflects social dynamics, including power relations and the fight against inequalities, the effectiveness of institutions largely depends on their use of communication strategies that engage and include women from diverse backgrounds. In this context, when we refer to intersectional communication, we aim to understand how the communication strategies and practices of these institutions may be contributing (or not) to the effective inclusion of women in all their diversity. It is crucial to identify whether the communication employed by these institutions takes into account social markers and systems of oppression that intersect with gender, such as race and age, when creating their posts on Instagram, the digital social network on which they maintain the most active presence.

Promoting gender equality in ICT is a multifaceted task that requires collaboration between government, civil society, and technological activism institutions. Incorporating intersectionality as a guiding principle in these efforts is essential to ensure that digital inclusion initiatives are effective and inclusive of all women. This paper seeks to contribute to the ongoing debate on the importance of adopting intersectional communication in promoting gender equality in ICT by technological activist institutions in Portugal.

2. CYBERFEMINISM AND ACCESS TO PUBLIC SPACE VIA DIGITAL SOCIAL NETWORKS

The democratisation of communication on digital social networks, facilitated by ICTs, has transformed the way we interact. Tools for “posting, sharing, and communication, oriented towards a collective structure” (Amaral, 2012, p. 133) have played a significant role in the development of new communication models.

Recuero (2014) underlines that these tools generate new stimuli for conversation processes, enabling “collective, asynchronous or synchronous, public conversations that can engage a large number of actors, which we refer to here as network conversation” (p. 123). According to the author, the new models of conversation in digital spaces differ from traditional ones because they allow discourse to be amplified and modified by various social groups across different spaces and times, collaboratively enhanced in new contexts, thereby creating new opportunities for social transformation.

In this sense, Chadwick (2017) attributes the characteristic of hybridity to cyberspace — the digital environment where content is shared, produced, and decentralised — as it is not possible to “ontologically” separate the online from the offline (Abreu, 2017, p. 136). In cyberspace, old and new technologies intertwine and complement each other, breaking down physical, geographical, and cultural barriers. According to Babo (2018), cyberspace is a space for sharing that, thanks to its hybridity, mobilises collective actions capable of impacting the public sphere.

The communication channels made hyperconnected by media convergence mean that, in cyberspace, real life merges with online life, and the private with the public (Santaella, 2004, 2010). In *O Poder da Identidade* (The Power of Identity), Castells (1996/2018) discusses the dynamics of network mobilisation and the formation of groups united by shared values, which manifest through virtual communities that inhabit new social spaces for the construction of diverse realities.

The feminist movement has begun to use cyberspace to extend its reach, disseminate its cause, raise awareness among women, and access places it previously could not, thus giving rise to cyberfeminism. According to Brandt and Kizer (2015), the internet has made activism more accessible, with cyberspace becoming a conduit for social justice, where the conversational model plays a key role in its popularisation.

Cyberfeminism is an “aesthetic and political” movement that reshaped feminist discourse by placing gender inequalities in technology and science at the forefront of its demands (Martinez, 2019). The first cyberfeminist manifesto was written in 1991 by Australian artists from the VNS Matrix group (Timeto, 2019). However, it was Donna Haraway’s (1991) *Cyborg Manifesto* that outlined the two main approaches of the movement. The first critiqued the hybridisation of women and machines, aiming to deconstruct gender asymmetries related to the female body. The second focused on challenging gender stereotypes in the technology market, which was dominated by men, particularly in positions of power.

It was in the 2000s, however, with the popularisation of digital technologies for domestic use, that cyberfeminism began addressing social issues. Its actions developed a networked dynamic, connecting points of contact both in the streets and online, highlighting the movement’s need to adapt (Boix & Miguel, 2013; Reis & Natansohn, 2021). This new dimension gave rise to demands that had previously been silenced within the feminist movement, bringing issues such as the struggles of Black women and the rights of trans women into the public sphere. Digital social networks now provide a platform for marginalised and silenced minorities to speak out and resist (Ferreira & Lima, 2020; Ribeiro, 2017).

The subjects of this study exemplify the shift towards political, social, and cultural engagement through cyberfeminism. Most of them aim to share technological knowledge with other women, empower them, foster their development, and populate new social and economic spaces made possible by the “fourth wave” of the feminist movement (Lamartine & Cerqueira, 2023). Although there is no consensus on the existence of a fourth wave, its emergence is linked to the widespread use of digital social networks as platforms for collective mobilisation and the inclusion of an intersectional perspective in feminist agendas.

3. THE IMPORTANCE OF INTERSECTING THE DEBATE

The fourth wave of the feminist movement encompasses demands that have already been part of previous waves. As such, a complete separation between the past and the present is not feasible. However, its digital reach stands as one of the main distinguishing features of the current movement (Lamartine & Cerqueira, 2023). Through digital activism, it is possible to promote mobilisations whose fluidity in cyberspace enables

the engagement of thousands of people (Reis & Natansohn, 2021). Martins and Nunes (2019) argue that “it is in this way that the internet plays a crucial role in enabling women to build their political action in the public sphere, providing an effective means to disseminate information and create empowering spaces” (p. 122).

An essential characteristic of the fourth wave is its emphasis on diversity in shaping more inclusive narratives. This comprises addressing identity struggles that challenge racism, ableist discourse, and ethnocentrism — issues that continue to silence and marginalise women affected by these intersecting oppressions. The goal is to broaden representation within feminist discourses, fostering and amplifying the diverse voices and demands that persist (Cerqueira & Magalhães, 2017).

The concern to increase the representation of invisibilised women brings back the concept of “intersectionality”, widely defended by authors from the Black feminist movement. In a North American context, authors such as Audre Lorde (1984/2019), Angela Davis (1981/2016), and bell hooks (1984/2019) questioned the inefficient dynamics that ignored the racial markers, gender stereotypes, and class privileges within and outside feminist movements. Another important contribution came from Kimberlé Crenshaw (1989), who coined the term and proposed an approach that examines how the interaction between gender and race overlaps through intersecting “avenues”.

In the Global South, particularly in Brazil, authors like Lélia Gonzalez (1988) and Beatriz Nascimento (1974), two prominent figures in the Brazilian Black feminist movement, have enriched the debate by exploring the impact of intersecting gender and class dynamics on the lives of racialised women (Casemiro & Silva, 2021). From a more contemporary perspective, Akotirene (2019) highlights the importance of valuing and reclaiming the cultural heritage of Black communities, asserting that “the methodological articulation proposed by Black feminists, currently called intersectionality, recovers lost ancestral baggage” (p. 25).

Incorporating the concept of “intersectionality” to ensure the inclusion and representation of all people requires the fourth-wave feminist movement not only to grasp its principles but also to approach it from a methodological and critical perspective. Framing intersectionality in this way can help identify existing inequalities and propose alternatives for transformative change (Collins & Bilge, 2021). Akotirene (2019) argues that this is the only path to altering the dominant power structures that persist and enabling a “discursive rescue” systematically denied by markers such as gender, race, sexuality, and other forms of social difference.

In particular, with regard to promoting gender equality, “intersectionality” appears as a central concept, without which it is not possible to achieve truly significant results for all people (Parry et al., 2018). For Zimmerman (2017), the fourth-wave feminist movement opposes the silencing of marginalised people. It creates a dynamic that enables political visibility through the promotion of diversity and inclusion, which are also essential principles for achieving gender equality.

Despite the importance of using digital social networks as spaces for horizontal communication, acceptance, and empowerment, it is crucial to train women so that they

are not just consumers of these technologies but also active producers. The interactions between machines/technology and humans follow patterns designed to exclude anything that doesn't conform, creating a relationship that favours those who dominate the technologies. Therefore, all women must assume strategic positions of power by fully engaging with and utilising these technologies.

4. THE USE OF INTERSECTIONALITY TO COMBAT DIGITAL GENDER GAPS

Despite the widespread use of ICT in the European Union, those who initially had the most access to these technologies were predominantly young White males (Lapa & Vieira, 2019). The binary concept of man and woman, where the former was always considered superior to the latter, created a hierarchy that marginalised women in the field of technological sciences.

In Portugal, gender stereotypes, which were perpetuated in school textbooks and advertising for years, have reinforced the idea that technology is a male-dominated field. Fonseca et al. (2023) highlight that the Estado Novo dictatorship, which ruled the country for nearly 50 years, played a key role in the continuation of these stereotypes and the delay in implementing truly inclusive gender policies. As the authors note, "Portuguese women, therefore, lived in a state of legal inequality compared to men, with unequal status within the family and the couple, as well as in terms of political, social, labour, and cultural rights" (Fonseca et al., 2023, p. 105). It was only after the fall of the fascist regime on April 25, 1974, that the gradual process of women's emancipation in the country began.

The legacy of gender inequality in Portuguese society is reflected in cyberspace and is evident at various levels of society. In the economy, the shortage of qualified labour affects the ability to meet the growing demand for technology professionals, which can impact not only the country's economic development but also its digitalisation capacity (Cruz-Jesus et al., 2017).

In addition to the economic issue, the lack of diversity in ICT production means that technologies are shaped by the perspectives of those who created them, perpetuating patterns in a field that remains predominantly male (Albusays et al., 2021). As a result, technological solutions are often biased, reproducing discourses that, instead of fostering inclusion, exclude those who do not conform to certain standards.

An example of this logic is the study by Carrera and Carvalho (2020), which aimed to understand the concept of "family" as interpreted by search engine algorithms. By entering the terms "family", "black family", and "white family" into search engines, the authors analysed more than 2,500 images. They discovered that Black women were more often depicted alone or as single mothers¹ compared to White women. This reinforces the image of racialised women as isolated. When searching for "family", the majority of images were of White families (woman, man, and child[ren]). In essence, the algorithm upholds Whiteness as the hegemonic norm, relegating Black women to a condition of solitude.

¹ When Black women were not depicted alone, they were portrayed in the role of caregiver or mother, often without the presence of a partner.

Algorithms are designed to replicate the patterns established by their creators. By analysing these patterns, we can better understand how factors such as gender and race shape these dynamics and influence the development and use of ICTs. This relationship is so pronounced that it also exerts a subjective influence on how this inequality impacts the emotional well-being and self-esteem of individuals, especially women (Natansohn, 2013). The socio-cultural impact of this androcentric approach to technology has marginalised women, positioning them as outsiders and contributing to the digital gender gap.

The digital gender gap reflects the historical inequality between women and men, encompassing disparities in access to and the development of digital ICT skills. Castaño (2008, 2019) categorises this gap into three dimensions: access, the use of technological tools, and the production of technologies. In Portugal, public policies addressing the digital gender gap have largely focused on education and employment initiatives (Silveirinha, 2011), often overlooking the underlying social causes of the issue — such as limited access to technological devices, poor-quality connectivity, and low levels of technological literacy influenced by gender or geolocation (van Deursen & van Dijk, 2015). Within this context, recent years have witnessed the rise of cyberfeminist organisations in Portugal dedicated to tackling gender inequality in ICT; they are the core focus of this study.

5. METHODOLOGY

This research aims to determine whether the posts produced by technological activist organisations working to reduce digital gender gaps in Portugal exhibit intersectional characteristics. In order to address this, the study poses the following question: is intersectionality reflected in the posts of these organisations? A mixed content analysis (Bardin, 1977/2006) was conducted on all posts made during the first half of 2023 (from January 1 to June 30) on the Instagram accounts of Portuguese Women In Tech, As Raparigas do Código, Geek Girls Portugal, and Women In Tech Portugal. These private technology activist organisations collaborate with the National Digital Skills Initiative e.2030, Portugal INCoDe.2030, the primary governmental initiative promoting gender equality in ICT in Portugal. Data was manually collected on July 17 and 18, 2023, and organised into a database created in Excel.

We chose to analyse Instagram because it is the digital social network most used by the organisations analysed. With over one billion users worldwide (Sprout Social, 2019), the platform was created for users to share photographs and videos with their network of followers. Its main characteristic is the valorisation of visual content.

The content was analysed in two stages. First, all the posts were mapped to identify the main themes addressed by these institutions. This analysis was not part of the initial plan, but during the pre-analysis phase, the need for it became apparent. The thematic survey provided valuable insights into how intersectionality is linked to these themes. Second, we examined whether, beyond gender — which is known to be a focus of these institutions — other factors were considered, such as:

- Race: we sought to determine whether non-White women, particularly Black women, are represented in the posts primarily through images.

- Age: we aimed to identify whether (a) there are posts targeted at teenagers; and (b) there are posts aimed at women over 50 who wish to learn programming or work in technology.
- Geolocation: we investigated whether (a) there are online training courses, events, and activities; and (b) there are physical training courses, events, and activities organised in cities outside Lisbon and Porto.

The selection of these categories is guided by Corrêa et al. (2018), who assert that “the intersection between multiple subjugated identities is fundamental to understanding the social place occupied by individuals in their communicative exchanges, in shaping their identities, and in recognising the identities of others” (p. 154). This perspective reinforces the recognition that gender inequality in ICT is a multifactorial issue, impacting girls and women differently according to their respective social and economic contexts.

6. RESULTS AND DISCUSSIONS

6.1. CONTENT ANALYSIS

A total of 380 posts were analysed, encompassing 788 images, 20 of which were videos (see Table 1). Four posts from Women In Tech Portugal were excluded because, although they appeared in its feed, they had been collaboratively posted by other accounts and not directly by the account itself.

#	ACCOUNT	NUMBER OF POSTS
1	Portuguese Women In Tech	111
2	As Raparigas do Código	30
3	Geek Girls Portugal	90
4	Women In Tech Portugal	153
	Total	384

Table 1. Number of posts and images analysed per account

The distribution of content (see Figure 1) was categorised into five groups: (a) commemorative, for posts on special dates; (b) informative, aimed at promoting events, training, or content that added value in educating the target audience; (c) empowering, consisting of motivational and encouraging messages; (d) representative, featuring images of women in positions of success or power, as well as visuals from events; and (e) partnerships, focused on promoting and thanking partners or sponsors.

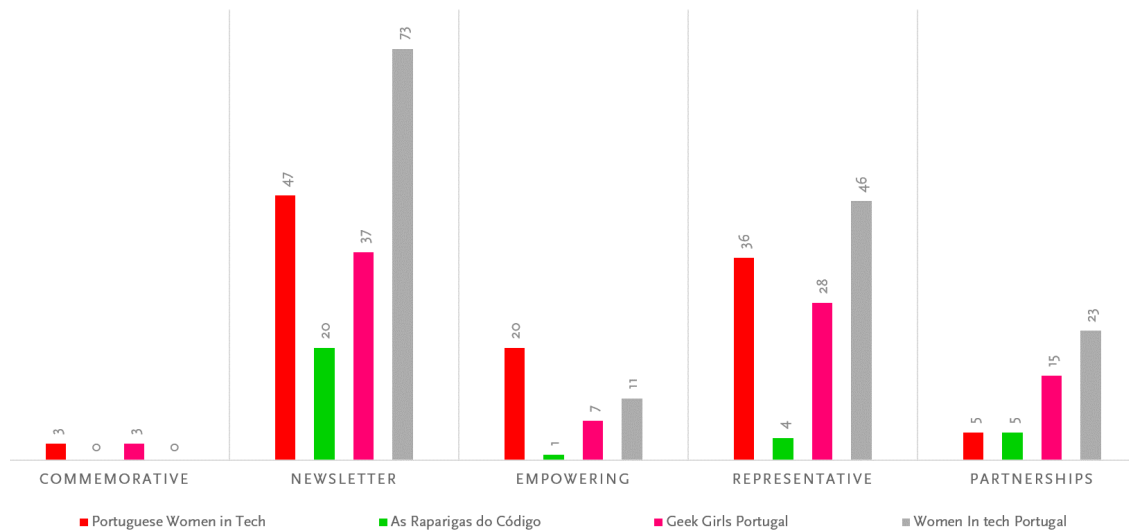


Figure 1. Distribution of content by category

The four profiles analysed focus their posts primarily on informative and representative content. As Instagram is a platform that fosters direct interaction with users (Carvalho, 2018), representative content plays a key role. By sharing photographs of women engaging with technology, these profiles aim to spark curiosity and interest among other women, thereby challenging gender stereotypes. Deconstructing such stereotypes in ICT is one of the primary objectives these profiles identify as essential to reducing the digital gender gap in the sector.

Creating content that captures users' interest is crucial for generating engagement, which can be measured through comments, likes, live messages, and shares. These interactions serve as indicators of relevance, influencing the platform's algorithm (Phua et al., 2016). It is essential to employ simple, accessible language that is also rich in information tailored to the target audience to maximise engagement.

In the example shown in Figure 2, a post from the @raparigasdocodigo account provides information about professions in the technology field. Using simple, straightforward language, it outlines the primary functions and skills required for the role. The caption text not only complements the image by directing users to a link with additional information but also addresses potential uncertainties among followers by acknowledging that "with so many options available in the IT world, it can be difficult to know which is the best path to choose". This validation of doubt adds value by fostering a connection with the profile's followers. Furthermore, this and similar posts from the analysed account exemplify efforts to make the internet a more democratic space through the dissemination of information (Reis & Natansohn, 2021).



Figure 2. Instagram post by @asraparigasdocódigo

Source. Retrieved from *Com tantas opções disponíveis no mundo de IT pode tornar-se difícil saber qual o melhor caminho escolher* [Photograph], by As Raparigas do Código [@asraparigasdocodigo], 2023, Instagram. (https://www.instagram.com/p/CoXEKipLYHi/?img_index=5)

Note. Translation “Cybersecurity Analyst. Functions: Develops and updates new and/or existing security systems. Identifies vulnerabilities in the system. Continuously monitors activity within and outside the infrastructure to respond to potential issues accordingly. Skills: Excellent communication skills and critical thinking. Knowledge of system and network administration. Proficiency in programming”. “asraparigasdocodigo: With so many options available in the IT world, it can be challenging to know which path to choose. In this post, you can explore different careers in IT, their roles, and the skills needed to succeed. Join our community, where you’ll find mentors working in some of these areas and get all your questions answered. Link in bio”.

While the content and representations are used to democratise access and facilitate engagement for girls and women, our analysis revealed an interesting linguistic pattern. Despite operating in the Portuguese context, the majority of the content posted by some accounts was in English. Specifically, Portuguese Women In Tech posted 74% of its content exclusively in English, without translation; As Raparigas do Código posted 100% of its content in Portuguese; Geek Girls Portugal posted 58% in English; Women In Tech Portugal posted 90% in Portuguese. In the case of Geek Girls Portugal, the content was posted in English primarily when the corresponding event or activity was conducted in English. Women In Tech Portugal, while using English in its images, provided Portuguese translations in the caption space in 90% of cases, ensuring accessibility for its audience.

We associate the use of English with two main factors: first, the internationalisation of these accounts within the European Union, which facilitates networking and knowledge exchange, and second, the prevalence of English in materials, documents, and programming languages, making it the dominant language in this field. However, despite 64.2% of Portuguese people aged 18 to 69 speaking English (Instituto Nacional de Estatística, 2023), the choice of English may still pose an additional barrier for those who wish to enter this area but lack full proficiency in the language.

6.2. INTERSECTIONALITY IN POSTS

6.2.1. GENDER AND RACE

In this category, we analysed only the images in the posts to identify individuals with phenotypes other than White, focusing particularly on the representation of Black women. The identification process involved examining the photos for physical traits characteristic of people of African descent. This focus is significant for two reasons. First, it relates to Portugal's immigration trends, especially since the 2000s, which have seen an influx of immigrants primarily from Portuguese-speaking countries, including Brazil (Vieira et al., 2020) — a group historically impacted by colonial legacies and structural racism. Second, highlighting the presence of Black women is crucial for challenging the notion of Whiteness as a universal standard (Kilomba, 2019). Addressing the experiences of marginalised women reveals an even greater necessity to adopt an intersectional lens in our analysis, incorporating factors such as race, class, religion, and nationality alongside gender (Crenshaw, 2002).

The data analysed (Figure 3) revealed that the Women In Tech Portugal account was the most diverse in this regard, with 22% of its posts featuring women with phenotypes other than White. It was followed by Portuguese Women In Tech with 14%, As Raparigas do Código with 13%, and, lastly, Geek Girls Portugal with 11%.

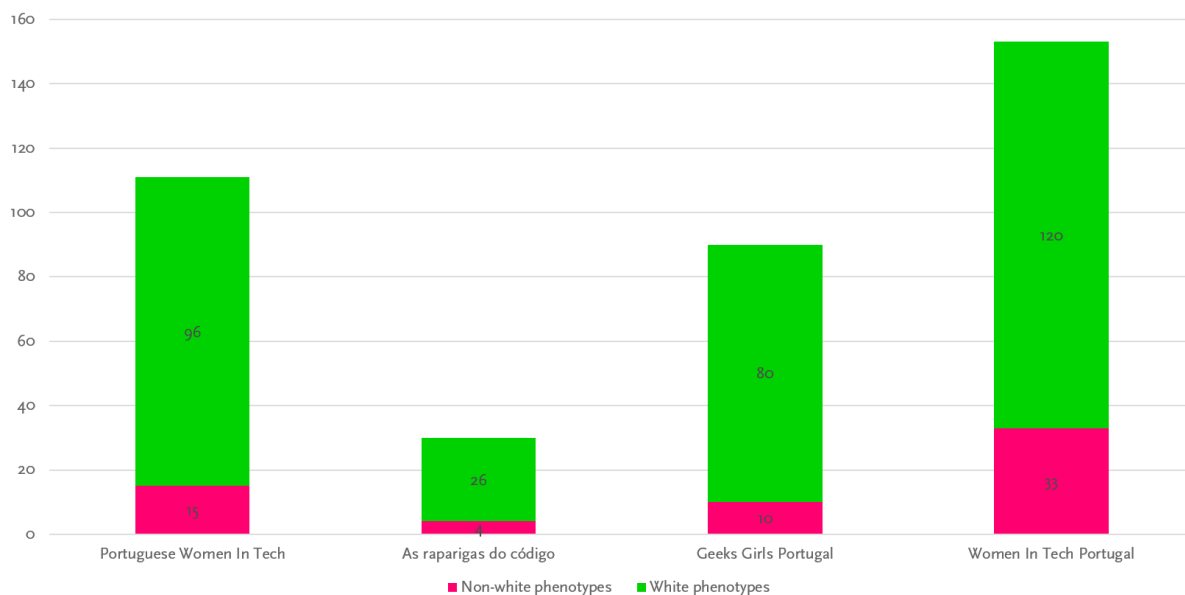


Figure 3. Representation of women with non-White phenotypes x White phenotypes in posts

According to the example in Figure 4, Black women are portrayed in leadership roles, challenging the stereotype that they only occupy marginal positions in society. Deconstructing the notion that only White men can hold positions of power is crucial for breaking down gender stereotypes and encouraging girls and women to envision themselves in such roles. Another noteworthy aspect of Women In Tech Portugal's posts is the

portrayal of Black women alongside other non-White women, avoiding the stereotype of the “only Black person” (Corrêa & Bernardes, 2018, p. 207). In other words, the image of a single Black woman among White women was not used to create a false sense of diversity, except in posts specifically celebrating an individual woman’s contributions.

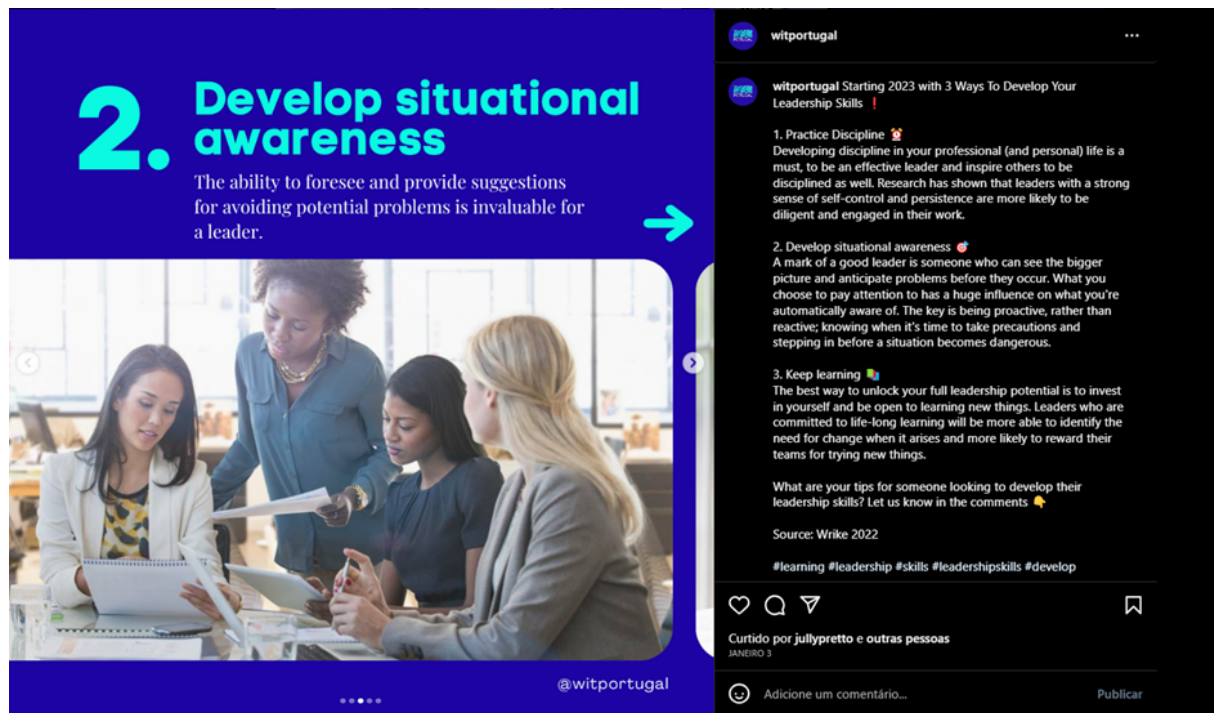


Figure 4. Instagram post by @witportugal

Source. Retrieved from *Starting 2023 with 3 ways to develop your leadership skills [Photograph]*, by Women in Tech Portugal [@witportugal], 2023, Instagram.
 (https://www.instagram.com/p/Cm8nvYolA92/?img_index=2)

However, we found limited diversity on the other pages, except on commemorative dates such as International Women’s Day, celebrated globally on March 8. On this occasion, the Portuguese Women In Tech, As Raparigas do Código, and Geek Girls Portugal accounts posted illustrations. While we recognise the importance of diversity in body and racial representation on such commemorative dates, it is crucial to explore the limitations of these representations further.

The data analysis indicates that women with non-White phenotypes are underrepresented on these pages. When they are depicted, however, they often occupy leading roles or share leadership with other women. The continued invisibility of non-White women reflects the persistent inequalities present in society.

6.2.2. GENDER AND AGE

The discourse across the four pages analysed centres on including women in technology, promoting gender equality, and ultimately increasing diversity in a job market still dominated by men. However, upon examining the content, we found limited diversity in terms of the age range of the target audience represented. The content predominantly

targets young women and young adults who are either beginning their careers or considering a shift towards the technology sector. This aligns with Instagram's primary audience, making such communication appropriate for this demographic.

We sought to identify visual elements targeting women over 60 to determine if these accounts also represent them. We found that they are primarily on the Women In Tech Portugal account but almost always in the role of speakers sharing their expertise. In other words, they are depicted in positions that convey credibility and trust, which reinforces the stereotype that age equates to wisdom while excluding the possibility that older women could also be in a learning environment.

Regarding children and young people in particular (Figure 5), we identified five publications featuring images of teenagers participating in activities specifically designed for them. While we recognise the importance of protecting the image of individuals under the age of 18, we also noted a lack of textual references or activities specifically targeted at teenagers.

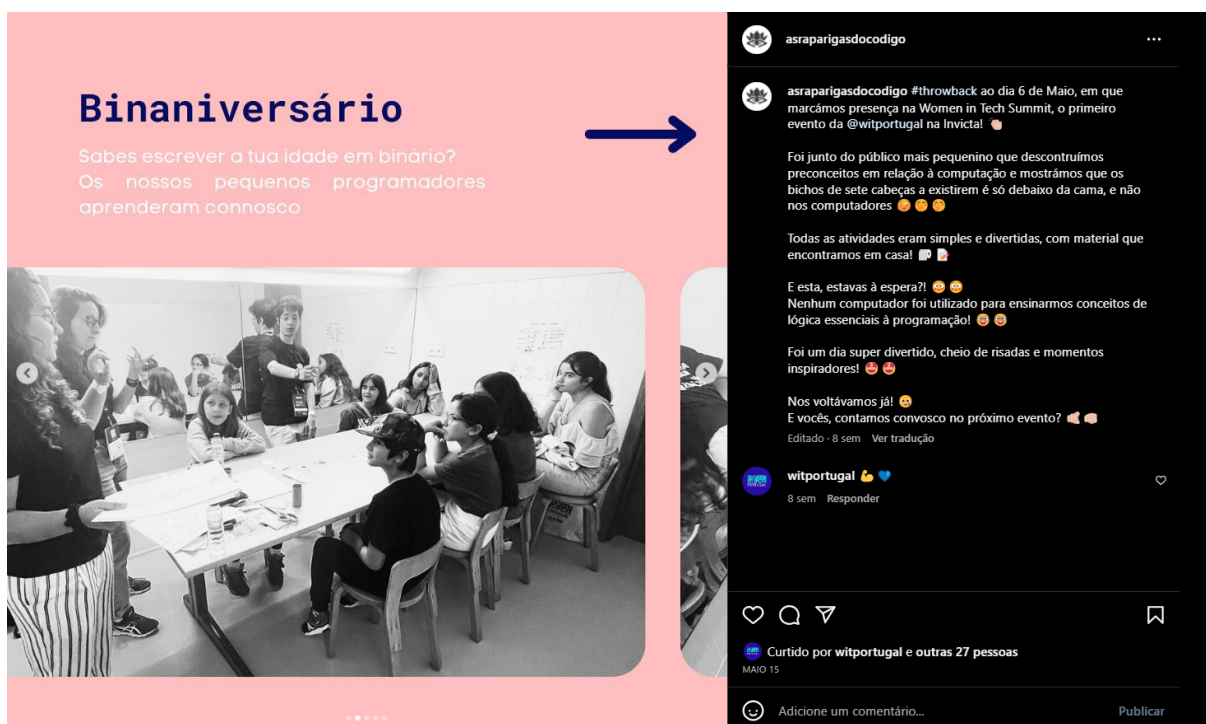


Figure 5. Post for children and young people

Source. Retrieved from #throwback ao dia 6 de Maio, em que marcámos presença na Women in Tech Summit, o primeiro evento da @witportugal na Invicta! [Photograph], by As Raparigas do Código [@asraparigasdocodigo], 2023, Instagram. (https://www.instagram.com/p/CsRyWXJszQg/?img_index=2)

Note. Translation: “Binaniversary. Can you write your age in binary? Our little programmers learned how with us!”; “asraparigasdocodigo: #Throwback to May 6, when we joined the Women in Tech Summit, the first @witportugal event in the Invicta! With the youngest participants, we challenged stereotypes about computing and showed that the only monsters are under the bed — not in computers. All activities were simple and fun, and used materials easily found at home! Surprised? No computers were needed to teach logic concepts essential for programming! It was a fantastic day, filled with laughter and inspiring moments. We’ll be back soon! What about you? Will we see you at the next event?”.

Narrowing the digital gender gap requires challenging the stereotype that technology is predominantly a male domain. These social roles are deeply entrenched in the stereotypes perpetuated by patriarchal societies (Alozie & Akpan-Obong, 2017) and are among

the underlying factors contributing to the issues discussed here. They also reinforce “sectoral segregation and discrimination of women in ICT professions and sectors” (Segovia-Pérez et al., 2019, p. 187). Masculine-coded environments persist, where women are frequently discouraged from participating and often deemed incapable.

The movement to challenge this paradigm must begin in schools, where girls first develop their skills and interests. Consequently, the lack of diversity in terms of representation or the absence of activities aimed at children and young people suggests that the accounts fail to address the age gap in their action plans or Instagram posts.

Examining the generational divide is crucial to understanding how ICTs are integrated into the routines of different age groups. Those born before the advent of the internet are considered “digital immigrants” and often face greater difficulty adapting to technological advancements. Conversely, individuals born after the creation of the internet, referred to as “digital natives”, typically find it easier to navigate and utilise the internet (Ballano et al., 2014). This distinction is significant, as proficiency in using the internet and ICT is closely linked to a willingness to adopt new technologies in everyday life, which can, in turn, enhance the quality of life and foster greater autonomy (Berkowsky et al., 2017).

6.2.3. GENDER AND GEOLOCATION

Among the publications that provided the location of events or training sessions, 27% were held in Lisbon and/or Porto, 8% were conducted online, and 14% took place in other cities. Notably, Coimbra and Aveiro, two other major cities in the country, featured among these locations. Only one activity was identified as taking place in a town in the interior of the country, at a secondary school (see Figure 6).

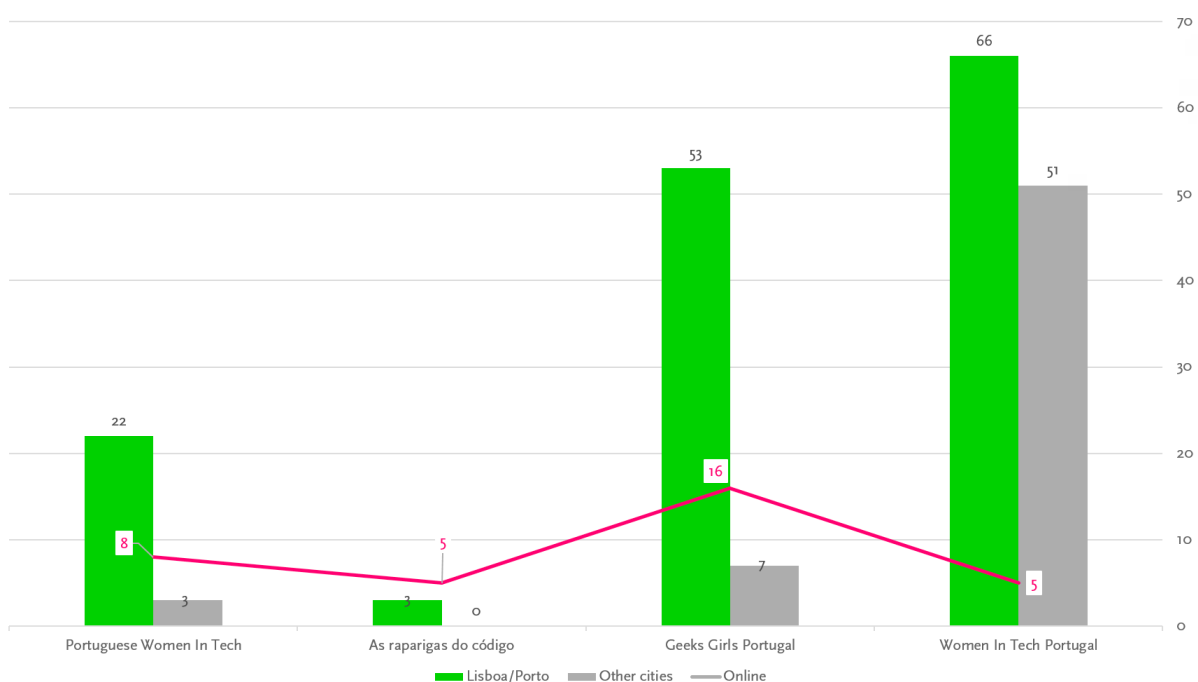


Figure 6. Cities hosting events

The scarcity of face-to-face events in smaller cities or the interior of the country excludes a portion of the population unable to afford or manage the long distances separating these areas from major metropolises. However, while in-person events may not reach rural areas, Geek Girls Portugal and Portuguese Women In Tech provide a significant portion of their mentoring and training remotely, theoretically enabling women from across the country to access the content. Additionally, these resources are made available free of charge.

Nevertheless, access to the network and tools provided is not sufficient; one must also know how to use them. Active participation in both the consumption and production of content requires addressing various levels of digital exclusion, such as skills, literacy, and engagement (Castaño, 2008; van Dijk & van Deursen, 2014). Therefore, even if websites offer online training, it is important to question and further explore the effectiveness of such training.

7. CONCLUSIONS

This exploratory study aimed to determine whether intersectional communication is employed by technology activism organisations working to promote gender equality in ICT in Portugal. An analysis of the Instagram posts from four such institutions revealed that, while efforts are made to include women of different races, ages, and geographical locations, these initiatives are still insufficient to foster truly intersectional communication.

An analysis of the posts from technology activism institutions in Portugal revealed limited diversity in the representation of women with non-White phenotypes. Women In Tech Portugal stood out as the most diverse, with 22% of its posts featuring non-White women. This institution was particularly notable for portraying Black women in leading roles, challenging stereotypes of marginalisation, and emphasising the importance of diverse representations in deconstructing social imaginaries and encouraging the inclusion of women in positions of power.

In contrast, the other institutions analysed (Portuguese Women In Tech, As Raparigas do Código, and Geek Girls Portugal) displayed less racial diversity in their posts, with percentages of 14%, 13%, and 11%, respectively. This lack of diversity, with the exception of commemorative dates like International Women's Day, highlights a limited representation that requires further development and expansion. It underscores the need for a more consistent and ongoing effort to include non-White women in their content.

Analysing age revealed that the majority of posts lack specific content aimed at girls and women over 60, suggesting a potential gap in the inclusion of various age groups in discussions about technology and female empowerment. This aspect is crucial for fostering intergenerational inclusion and ensuring that women of all ages feel represented and encouraged to engage in the technology sector.

Regarding geolocation, most events and activities promoted by the institutions were concentrated in Lisbon and Porto, highlighting a geographical centralisation that could limit the involvement of women from other regions. Decentralising activities and

offering online events could help expand the reach and participation of women in diverse locations, thereby addressing regional inequalities in access to ICTs.

The discussion of these results suggests that, despite significant efforts by technology activism institutions in Portugal, there are still considerable challenges in achieving truly intersectional communication. The inclusion of women from various races, age groups, and geographical locations is crucial for a more comprehensive and effective approach to addressing gender inequalities in ICT.

Therefore, technology activism institutions in Portugal should reconsider and broaden their communication strategies to incorporate a strong intersectional approach. This would involve the continuous and diverse representation of women across races and ages, as well as the decentralisation of activities. Such changes are essential for creating a more inclusive and equitable environment where all women can develop and thrive in the ICT sector.

Translation: Anabela Delgado

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REFERENCES

- Abreu, C. (2017). Narrativas digifeministas: Arte, ativismo e posicionamentos políticos na internet. *Revista Brasileira de Pesquisa (Auto)biográfica*, 2(4), 134–152. <https://doi.org/10.31892/rbpab2525-426X.2017.v2.n4.p134-152>
- Akotirene, K. (2019). *Interseccionalidade*. Polén.
- Albusays, K., Bjorn, P., Dabbish, L., Ford, D., Murphy-Hill, E., Serebrenik, A., & Storey, M.-A. (2021). The diversity crisis in software development. *IEEE Software*, 38(2), 19–25. <https://doi.org/10.1109/MS.2020.3045817>
- Alozie, N. O., & Akpan-Obong, P. (2017). The digital gender divide: Confronting obstacles to women's development in Africa. *Development Policy Review*, 35(2), 137–160. <https://doi.org/10.1111/dpr.12204>
- Amaral, I. (2012). Participação em rede: Do utilizador ao “consumidor 2.0” e ao “prosumer”. *Comunicação e Sociedade*, 22, 131–147. [https://doi.org/10.17231/comsoc.22\(2012\).1278](https://doi.org/10.17231/comsoc.22(2012).1278)
- As Raparigas do Código [@asraparigasdocodigo]. (2023, February 7). *Com tantas opções disponíveis no mundo de IT pode tornar-se difícil saber qual o melhor caminho escolher* [Photograph]. Instagram. https://www.instagram.com/p/CoXEKipLYHi/?img_index=5
- Babo, I. (2018). Redes, ativismo e mobilizações públicas. Ação coletiva e ação conectada. *Estudos em Comunicação*, 1(27), 219–244.
- Ballano, S., Uribe, A. C., & Munté-Ramos, R.-À. (2014). Young users and the digital divide: Readers, participants or creators on internet? *Communication & Society*, 27(4), 147–155. <https://doi.org/10.15581/003.27.4.147-155>

- Bardin, L. (2006). *Análise de conteúdo* (L. Reto & A. Pinheiro, Trans.). Edições 70. (Original work published 1977)
- Berkowsky, R. W., Sharit, J., & Czaja, S. J. (2017). Factors predicting decisions about technology adoption among older adults. *Innovation in Aging*, 1(3), 1–12. <https://doi.org/10.1093/geroni/igy002>
- Boix, M., & Miguel, A. (2013). Os gêneros da rede: Os ciberfeminismos. In G. Nathanson (Ed.), *Internet em código feminino: Teorias e práticas* (pp. 15–38). La Crujía Ediciones.
- Brandt, J., & Kizer, S. (2015). From street to tweet. In A. Trier-Bieniek (Ed.), *Feminist theory and pop culture* (pp. 115–127). Sense Publishers. https://doi.org/10.1007/978-94-6300-061-1_9
- Carrera, F., & Carvalho, D. (2020). Algoritmos racistas: A hiper-ritualização da solidão da mulher negra em bancos de imagens digitais. *Galáxia*, (43), 99–114. <https://doi.org/10.1590/1982-25532020141614>
- Carvalho, G. (2018). Redes sociais e influenciadores digitais - Uma descrição das influências no comportamento de consumo digital. *Revista Brasileira de Pesquisas de Marketing*, 11(3), 288–299.
- Casemiro, D., & Silva, N. (2021). Teorias interseccionais brasileiras: Precoces e inominadas. *Revista de Ciências do Estado*, 6(2), 1–28. <https://doi.org/10.35699/2525-8036.2021.33357>
- Castaño, C. (2008). La segunda brecha digital y las mujeres. *Telos: Cuadernos de Comunicación e Innovación (digital)*, (75), 1–11.
- Castaño, C. (2019). Revolución tecnológica y acceso de las mujeres al espacio público. *Revista Tiempo de Paz*, 134, 43–51.
- Castells, M. (2018). *O poder da identidade* (K. B. Gerhardt, Trans.). Paz & Terra. (Original work published 1996)
- Cerqueira, C., & Magalhães, S. (2017). Ensaio sobre cegueiras: Cruzamentos interseccionais e (in)visibilidades nos media. *ex æquo*, (35), 9–20. <https://doi.org/10.22355/exaequo.2017.35.01>
- Chadwick, A. (2017). *The hybrid media system: Politics and power*. Oxford University Press.
- Corrêa, L., & Bernardes, M. (2018). Quem tem um não tem nenhum: Solidão e sub-representação de pessoas negras na mídia brasileira. In L. G. Corrêa (Ed.), *Vozes negras em comunicação: Mídia, racismos, resistências* (pp. 203–220). Autêntica.
- Corrêa, L., Guimarães-Silva, P., Bernardes, M., & Furtado, L. (2018). Entre o interacional e o interseccional: Contribuições teórico-conceituais das intelectuais negras para pensar a comunicação. *Revista Eco-Pós*, 21(3), 147–169. <https://doi.org/10.29146/eco-pos.v21i3.20198>
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum*, 1, 139–167.
- Crenshaw, K. (2002). A interseccionalidade na discriminação de raça e gênero. In *Cruzamentos: Raça e gênero* (pp. 7–19). Unifem.
- Cruz-Jesus, F., Oliveira, T., Bacao, F., & Irani, Z. (2017). Assessing the pattern between economic and digital development of countries. *Information Systems Frontiers*, 19(4), 835–854. <https://doi.org/10.1007/s10796-016-9634-1>
- Davis, A. (2016). *Mulheres, raça e classe* (H. Candiani, Trans.). Boitempo. (Original work published 1981)
- European Commission. (2022). *European declaration on digital rights and principles for the digital decade*. [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023C0123\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023C0123(01))

- Ferreira, G., & Lima, J. (2020). Ciberfeminismo: Feministas tecem uma nova rede. *Diversitas Journal*, 5(3), 2263–2296. <https://doi.org/10.17648/diversitas-journal-v5i3-1209>
- Fonseca, I., Barreiros, B., & Pires, C. (2023). Challenges of women's digital inclusion in the Portuguese context. *International Conference on Gender Research*, 6(1), 104–111.
- Gonzalez, L. (1988). Por um feminismo afrolatinoamericano. *Revista Isis Internacional*, 9, 133–141.
- Haraway, D. (1991). *Simians, cyborgs, and women: The reinvention of Nature*. Routledge.
- hooks, b. (2019). *Teoria feminista: Da margem ao centro* (R. Patriota, Trans.). Perspectiva. (Original work published 1984)
- Instituto Nacional de Estatística. (2023, October 17). *Inquérito à educação e formação de adultos 2022*. INE.
- Kilomba, G. (2019). *Memórias da plantação: Episódios de racismo cotidiano*. Editora Cobogó.
- Lamartine, C., & Cerqueira, C. (2023). Entre ciberfeminismo e ativismo: Feminismo em Portugal no Dia Internacional Para a Eliminação da Violência Contra as Mulheres. *Vista*, (11), eo23005. <https://doi.org/10.21814/vista.4460>
- Lapa, T., & Vieira, J. (2019). Divisões digitais em Portugal e na Europa. Portugal ainda à procura do comboio europeu? *Sociologia Online*, 21, 62–82.
- Lorde, A. (2019). *Irmã outsider: Ensaios e conferências* (S. Borges, Trans.). Autêntica. (Original work published 1984)
- Martinez, F. (2019). Feminismos em movimento no ciberespaço. *Cadernos Pagu*, (56), 1–34. <https://doi.org/10.1590/18094449201900560012>
- Martins, M., & Nunes, M. (2019). Ciberativismo aliado ao movimento feminista: Uma análise da experiência do aplicativo penha. *Mediação*, 22(29), 111–130.
- Nascimento, M. B. (1974). Por uma história do homem negro. *Revista de Cultura Vozes*, 68(1), 41–45.
- Natansohn, G. (2013). *Internet em código feminino: Teorias e práticas*. La Crujía Ediciones.
- Parry, D., Johnson, C. W., & Wagler, F. (2018). Fourth wave feminism: Theoretical underpinnings and future directions for leisure research. In D. Parry (Ed.), *Feminisms in leisure studies* (pp. 1–12). Routledge.
- Pérez-Escoda, A., García-Ruiz, R., & Lena-Acebo, F. J. (2021). Digital gender gap and digital competence among university students. *Aula Abierta*, 50(1), 505–514. <https://doi.org/10.17811/rife.50.1.2021.505-5014>
- Phua, J., Jin, S. V., & Kim, J. (2016). Gratifications of using Facebook, Twitter, Instagram, or Snapchat to follow brands: The moderating effect of social comparison, trust, tie strength, and network homophily on brand identification, brand engagement, brand commitment, and membership intention. *Telematics and Informatics*, 33(1), 176–187. <https://doi.org/10.1016/j.tele.2016.06.004>
- Ragnedda, M. (2017). *The third digital divide: A Weberian approach to digital inequalities*. Routledge. <https://doi.org/10.4324/9781315606002>
- Recuero, R. (2014). Curtir, compartilhar, comentar: Trabalho de face, conversação e redes sociais do Facebook. *Revista Verso e Reverso*, XXVIII(68), 114–124.
- Reis, J. S., & Natansohn, G. (2021). Do ciberfeminismo... aos hackfeminismos. In G. Natansohn (Ed.), *Ciberfeminismos 3.0* (pp. 51–66). Labcom.
- Ribeiro, D. (2017). *O que é lugar de fala?* Letramento.

- Santaella, L. (2004). *Navegar no ciberespaço: O perfil cognitivo do leitor imersivo*. Paulus.
- Santaella, L. (2010). *A ecologia pluralista da comunicação: Conectividade, mobilidade, ubiquidade*. Paulus.
- Segovia-Pérez, M., Figueroa-Domecq, C., Fuentes-Moraleda, L., & Muñoz-Mazón, A. (2019). Incorporating a gender approach in the hospitality industry: Female executives' perceptions. *International Journal of Hospitality Management*, 76, 184–193. <https://doi.org/10.1016/j.ijhm.2018.05.008>
- Silveirinha, M. (2011). Mulheres, tecnologia e comunicação: Para além das receitas. *Media & Jornalismo*, 10(18), 62–83.
- Sprout Social. (2019). *Edition XV: Empower & elevate*. <https://media.sproutsocial.com/uploads/Sprout-Social-Index-2019.pdf>
- Timeto, F. (2019). Por uma teoria do ciberfeminismo hoje: Da utopia tecnocientífica à crítica situada do ciberespaço. *Porto Arte*, 24(40), 1–27. <https://doi.org/10.22456/2179-8001.95974>
- van Deursen, A., & van Dijk, J. (2015). Internet skill levels increase, but gaps widen: A longitudinal cross-sectional analysis (2010-2013) among the Dutch population. *Information, Communication & Society*, 18(7), 782–797. <https://doi.org/10.1080/1369118X.2014.994544>
- van Dijk, J. A. G. M., & van Deursen, A. J. A. M. (2014). *Digital skills: Unlocking the information society*. Palgrave Macmillan. <https://doi.org/10.1057/9781137437037>
- Vieira, R., Marques, J., Silva, P., Vieira, A., & Margarido, C. (2020). *Migrações, minorias étnicas, políticas sociais e (trans)formações. Mediação intercultural e intervenção social*. Edições Afrontamento.
- Women in Tech Portugal [@witportugal]. (2023, January 3). *Starting 2023 with 3 ways to develop your leadership skills* [Photograph]. Instagram. https://www.instagram.com/p/Cm8nvYolA92/?img_index=2
- Zimmerman, T. (2017). Intersectionality: The fourth wave feminist Twitter community. *Atlantis*, 38(1), 54–70.

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